BRITISH DENTAL JOURNAL

VOL. XC, No. 1 JANUARY 2, 1951

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January 2, 1951

BRITISH DENTAL JOURNAL

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(Incorporating the "Mouth Mirror" and the "Dental Gazette")

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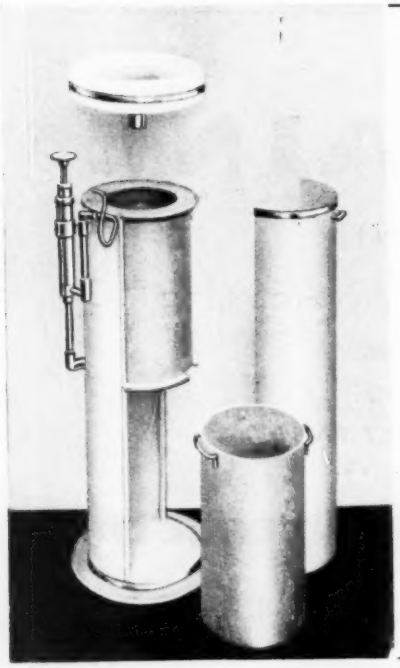

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Cheques and P.O. Orders should be made payable to the "British Dental Association," and crossed "Midland Bank."

Orders and remittances for advertisements must reach the Journal Manager at 13, Hill Street, Berkeley Square, London, W.1, at least 11 days before publication date. **Advertisements cannot be accepted by telephone.**

Replies to Box Numbers should be addressed Box No.—c/o B.D.J., 13, Hill Street, Berkeley Square, London, W.1. A Box Number is used in place of name and address to conceal identity of advertiser. **In no circumstances will this information be divulged by this office. Telephone messages for transmission to advertisers under Box Numbers cannot be accepted.**

Members are requested before applying for any public dental appointment advertised in the lay Press to communicate with The Secretary, 13, Hill Street, Berkeley Square, London, W.1.

PUBLIC APPOINTMENTS

THE University of Manchester. Chair of Dental Surgery. Applications are invited for the full-time PROFESSORSHIP of DENTAL SURGERY. The University is prepared to consider candidates with experience and qualifications in any branch of dentistry. Salary not less than £2,250 per annum with membership of the F.S.S.U. Duties to begin on a date to be arranged. Applications should be submitted not later than February 28, 1951, to the Registrar, the University, Manchester 13, from whom further particulars may be obtained. W. Mansfield Cooper, Registrar.

BIRMINGHAM Regional Hospital Board. Applications invited for the appointment of whole-time SENIOR HOSPITAL DENTAL OFFICER, Birmingham (Dudley Road) and Birmingham (Mental C) Groups of hospitals for duties at hospitals in the Dudley Road group and at Highcroft Hall Hospital. Candidates should have had considerable experience in the speciality. Salary scale £1,300 x £50 to £1,750 per annum. Appointment in accordance with "Terms and Conditions of Service" and subject to N.H.S. (Superannuation) Regulations. Fifteen copies applications stating name, age, nationality, qualifications, present and previous appointments, details of three referees, to Secretary, 10, Augustus Road, Birmingham 15, before January 22, 1951. Canvassing will disqualify. Candidates may visit group hospitals.

UNITED Manchester Hospitals. Dental Hospital. Applications are invited from registered dental practitioners for the following whole-time posts:—EXAMINING OFFICER. The appointment, which is superannuable, will be at a salary of not less than £700 per annum rising by £50 to £1,000 per annum. The starting point will be determined according to the qualifications and experience of the person appointed. HOUSE SURGEON for a period of six months from February 1, 1951, at a salary at the rate of £400 per annum. This post offers wide experience in all branches of dental surgery and the hospital is recognised by the Royal College of Surgeons for training for the Fellowship in Dental Surgery. Forms of application may be obtained from the Secretary, Dental Hospital of Manchester, Bridge Street, Manchester, 15. Closing date, January 20, 1951.

LONDON Hospital, Whitechapel, E.1. Applications are invited for the post of full-time REGISTRAR in the Dental Department. Candidates must hold a registrable dental qualification. The appointment will be for one year, renewable, and the salary in accordance with the terms and conditions of service for hospital medical and dental staffs. Applications (4 copies) giving names and addresses of 3 referees should be forwarded to reach the House Governor by January 12, 1951. H. Brierley, House Governor.

TUNBRIDGE Wells Group Hospital Management Committee. Queen Victoria Hospital Jaw Injuries Unit, East Grinstead. Applications are invited for the post of DENTAL HOUSE SURGEON. The post which is tenable for six months, is resident, and the salary in accordance with the scale for Dental House Officers. The post is recognised for the Fellowship in Dental Surgery of the Royal College of Surgeons. Applications in writing together with copies of recent testimonials, should be sent to the Senior Administrative Officer at the Hospital.

DENTAL House Officer required at Edgware General (formerly Redhill County) Hospital, Edgware, Middlesex. Post vacant February 5. Applicants should have registered dental qualifications. Salary £350—£450 p.a. according to experience. Non-resident post. Six months' appointment. Post approved for the Dental Fellowship (Eng. and Edin.). Applications stating age, qualifications, experience and enclosing copies of up to 3 recent testimonials, to Medical Director of Hospital.

HIS MAJESTY'S Colonial Service. DENTAL SURGEON required in Uganda. Appointment will be on 2 years' probation for permanent and pensionable employment. The salary scale is from £865 a year—£1,590 a year, the starting salary depending upon age and experience. Limited amount of private practice is allowed. Quarters provided at low rental. Free passages granted in both directions. Income tax very low. Generous home leave. Secondment from the National Health Service can be arranged for periods up to six years with continuation of superannuation contributions and the payment of a resettlement grant on reversion to the National Health Service. Candidates must possess dental qualifications registrable in the United Kingdom. Application forms can be obtained from the Director of Recruitment (Colonial Service), Colonial Office, Sanctuary Buildings, Great Smith Street, London, S.W.1.

ESSEX County Council. Barking Health Area. Appointment of DENTAL OFFICER. Applications are invited from Dental Surgeons for a full-time appointment in connection with the Priority Dental Service. The present scale of remuneration, adjustable upon the introduction of a national scale, is £835 to £1,000 per annum. It is anticipated that living accommodation will be available and this is the subject of negotiations. Experience and qualifications of the successful candidate will determine the commencing point within the scale. In addition to the Priority Service work facilities may be available by arrangement with the local Executive Council for the successful candidate to undertake not more than two evening sessions per week in connection with the General Dental Services. The person appointed will be required to pass a medical examination and contribute to the appropriate Superannuation Fund. The appointment will be subject to the Council's Standing Orders. Application forms may be obtained from the Acting Area Medical Officer, Town Hall, Barking, Essex, completed applications being returnable to the undersigned not later than January 20, 1951. E. R. Farr, Area Clerk, Town Hall, Barking, Essex.

WEST Sussex County Council. Appointment of three School Dental Officers. Applications are invited from registered Dental Practitioners for the appointment of three full-time (or part-time) SCHOOL DENTAL OFFICERS—one for the Borough of Worthing, one for the Chichester area, and one for the Littlehampton area. The present salary scale is £835 x £25 to £935 per annum, together with travelling expenses in accordance with the County Council scale in the case of the Chichester and Littlehampton area appointments. The salary scale will be subject to any revision which may be necessary in the light of decisions reached by any appropriate negotiating body. The appointments will be subject to the approval of the Ministry of Education. Further particulars and form of application may be obtained from the County Medical Officer, County Hall, Chichester, by whom all applications endorsed "School Dentist" on envelope should be received on or before January 19, 1951. Candidates are requested to state when replying for the form whether they have any preference for the appointment in Worthing, Chichester or Littlehampton. T. C. Hayward, Clerk of the County Council, County Hall, Chichester.

THE London County Council invites applications from registered dental practitioners with a degree or diploma in dental surgery for appointment as whole-time DENTAL SURGEON in the Public Health Department. Salary scale £770 to £1,250; commencing salary dependent on the experience offered. Apply to the Medical Officer of Health (PH/D.1), The County Hall, Westminster Bridge, London, S.E.1. (1377)

MIDDLESEX County Council. County Health Department. DENTAL OFFICER, whole-time, registered Dental Surgeon, required initially in Willesden (part of area 6). Duties include inspection and treatment of mothers and young children and School Dental Service. Private practice not allowed. Salary £750 x £50—£1,150 p.a. according to experience and qualifications. Established, subject to medical examination and prescribed conditions. Applications, stating age, qualifications, experience, 2 referees, to Joint Area Medical Officer, 54, Winchester Avenue, N.W.6, by January 16, 1951 (quoting H. 878, *B.D.J.*). Canvassing disqualifies. C. W. Radcliffe, Clerk of the County Council, Guildhall, Westminster, S.W.1.

FIFE County Council. DENTAL OFFICERS. Applications are invited from Dentists to fill vacancies in the County Dental Service. A house is available in some areas. The salary scale is at the rate of £720 to £845 per annum until negotiations for a National Salary Scale have been completed, with placing according to previous experience. Applications, stating age, qualifications, experience and enclosing copies of three recent testimonials should be sent to the Medical Officer of Health, County Buildings, Cupar, Fife. No canvassing. J. M. Mitchell, County Clerk, County Buildings, Cupar. December 5, 1950.

COUNTY Borough of Smethwick Education Committee. Appointment of School Dentist. Applications are invited from registered Dental Surgeons for appointment as ASSISTANT DENTAL OFFICER. The duties consist of the treatment of the priority classes under the Education Act, 1944, and the National Health Service Act, 1946. The officer appointed will work under the general direction of the Medical Officer of Health and the supervision of the Senior Dental Officer, and will be subject to the general conditions of service of the Authority. The appointment may be terminated by one month's notice on either side. The appointment is superannuable and the salary will be £1,000 a year. Applications stating age, qualifications and experience, together with the names of two referees, should be forwarded to the Chief Education Officer, 215, High Street, Smethwick, within 14 days of the appearance of this advertisement. E. L. TWYCROSS, Town Clerk.

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COUNTY Borough of Smethwick Education Committee. Appointment of School Dentist. Applications are invited from registered Dental Surgeons for a PART-TIME appointment as ASSISTANT DENTAL OFFICER. The duties consist of the treatment of priority classes under the Education Act, 1944, and the National Health Service Act, 1946. The officer appointed will work under the general direction of the Medical Officer of Health and the supervision of the Senior Dental Officer, and will be subject to the general conditions of service of the Authority. The appointment may be terminated by one month's notice on either side. It will be for five sessions a week plus one Saturday morning session every four weeks. The salary will be £500 a year. Applications stating age, qualifications and experience, together with the names of two referees, should be forwarded to the Chief Education Officer, 215, High Street, Smethwick, within 14 days of the appearance of this advertisement. E. L. TWYCROSS, Town Clerk.

CROWN Agents for the Colonies. DENTAL TECHNICIAN required by the Government of Nigeria for the Medical Department. Salary (including allowances) either (a) in the scale £711 rising to £860 a year for one tour of 18 to 24 months with prospect of permanency or (b) in the scale £926 rising to £1,042 a year on a temporary basis for four tours of 10 to 12 months with a gratuity of £25 for each period of 3 months' satisfactory service. Outfit allowance £60. Free passages for officer and wife and assistance towards cost of children's passages. Liberal leave on full salary. Candidates should have had good experience in a commercial dental laboratory or a laboratory of a dental hospital. Apply at once by letter, stating age, full names in block letters, and full particulars of qualifications and experience, and mentioning this paper to the Crown Agents for the Colonies, 4, Millbank, London, S.W.1, quoting M.26572.C., on both letter and envelope. The Crown Agents cannot undertake to acknowledge all applications and will communicate only with applicants selected for further consideration.

TUNBRIDGE WELLS Group Hospital Management Committee. Queen Victoria Hospital, East Grinstead. SENIOR DENTAL TECHNICIAN (Surgical) required to work in Dental Laboratory. Salary in accordance with Whitley Council Rates (£420 x £15—£480 x £20—£540). Applications with copies of recent testimonials to the Senior Administrative Officer at the Hospital.

MIDDLESEX County Council. County Health Department. SENIOR DENTAL TECHNICIANS (2) required initially in Area 10 for Dental Laboratory, Church Road, Teddington, Middlesex. Whitley Council Salary Scale £400 x £15—£490 p.a. plus London weighting (now £30 p.a. if 26 years or over). Superannuable subject to medical examination and prescribed conditions. Applications, stating age, qualifications, experience, 2 referees to Area Medical Officer, Area Health Office, Elmfield House, High Street, Teddington, Middlesex, by January 14, (quoting H.911, *B.D.J.*). Canvassing disqualifies. C. W. Radcliffe, Clerk of the County Council.

PRACTICES

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UNIVERSITY city. Large high-class practice, no N.H.S., established 18 years in large house also for sale, easily convertible to flats; double garage. S.S.W. equipment. Low price for goodwill. Present active Dental Surgeon relinquishing to specialise exclusively in dental oral surgery. Cash purchase only. —Box 721.

DEVON. Average gross last four years about £10,000. Old established well known practice, N.H.S. and private, in lovely modern house (low rental), 5 bedrooms, 1 acre gardens, self supporting, flowers, vegetables, fruit. Centre of town near sea. Two or three surgeries, two laboratories, also branch surgery. Splendid equipment—a truly splendid going concern serving large area; take over by arrangement. Full staff for house, garden and practice. In confidence.—Box 723.

A well known and long established practice for sale in Reading, in unusual circumstances. Has had large turnover for many years—all figures available. 3 well appointed surgeries, offices, workshops, etc., as well as ample and spacious living accommodation, all on very long lease at very low rent. High class private and N.H.S. patients. Staff will remain. Quite unrivalled opportunities. Very low price. Fullest enquiries welcomed.—Box 725.

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LONDON, W.2. Qualified old established practice—mostly N.H. work. Owner taking up public appointment. Professional rooms on first floor in excellent main road position on suitable lease. Price: £1,000 or offer.—**SOLD.**

OLD established practice in Cheltenham, beautifully equipped in modern suite. Vendor, due to illness, anxious to meet interested practitioner to discuss immediate sale, or assistantship with view to immediate purchase. Truly genuine proposition offering unlimited scope.—**SOLD.**

KENT. Qualified practice in residential suburb of S.E. London. Pre-N.H. Takings about £2,000 p.a. Large N.H. Turnover. Professional rooms including living accommodation in main road position.—**SOLD.**

W. COUNTRY. Country town. Death vacancy in established practice, only worked 4 days a week. House, with living accommodation and garden, to rent. Lease 21 years. Terms to suit buyer.—**SOLD.**

HOME COUNTIES. Qualified old established practice in country town. Takings previous to N.H. Scheme over £4,000 p.a. House, with comfortable living accommodation, for sale.—**SOLD.**

In addition to the above Practices which we have sold recently, we have many other propositions on our books of which we shall be happy to send you the particulars if you will let us know your requirements

ESTABLISHED Harley Street practice for immediate sale for little more than the cost of the equipment and furnishing.—Box 727.

DEATH vacancy—Hammersmith district—for immediate disposal. Old established practice (33 years). Well equipped surgery. Both private and N.H.S. patients. Good mechanic available.—Box 729.

WHY continue to be an assistant when you can own a practice? Situated in a growing district in Gloucestershire this excellent lock-up N.H.S. practice, where takings are high and expenses low, can if necessary be purchased out of income. No reasonable offer refused as owner is leaving district. Audited figures available.—Box 731.

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OLD established, qualified practice for immediate disposal, in a West Country popular seaside resort. Two modernly equipped surgeries. Excellent living accommodation available. All accounts audited. Full details from Box 588.

Wanted

TWO Australian graduates require lease of a lock-up practice for a period of 12 months from February 1951. Preferably within easy reach of London.—Box 733.

HOUSES AND PROFESSIONAL ACCOMMODATION

Available

MOUNT Pleasant. Central Liverpool. Good main road house and shop. Very suitable dentist. V.P. £1,800. R. & T. Glynne Evans, 129 Tower Building, Water Street, Liverpool, 3. CENtral 1523/4.

NORTH London. On main road adjacent new building estate, large house converted into 2 s/c. flats and two garages with flat over. Pleasant gardens. Freehold possession, £4,900.—Box 735.

DONCASTER.—Prominent central premises lately occupied by Dental Surgeon to let. Living accommodation available if required. Apply: D. L. Staniland & Co., 3, Hall Gate, Doncaster.

A VERY large consulting room, waiting room and secretary's room suitable for a Dental Surgeon to be let in Hyde Park Square. Best position. Also available in same building in basement excellent premises suitable for a dental laboratory. Reply to Box 737.

Wanted

DENTAL Registrar at Guy's requires unfurnished self-contained flat in South London or North Kent for self and wife.—Box 739.

PARTNERSHIPS

Offered

GENEROUS partnership offered in well-established qualified practice in Essex. Short introductory assistantship. House available for married man. Ready cash not essential, but assets should include youth, integrity and competence in conservative work.—Box 741.

PARTNERSHIP offered after short trial assistantship in a progressively increasing first class private West End practice. Very fine modern premises in Harley Street area.—Box 743.

APPOINTMENTS

Vacant

A VACANCY will shortly be occurring for a full-time industrial Dental Officer with a well-known engineering manufacturer in Yorkshire. Commencing salary £1,500 p.a. Write, giving full details of age, qualifications and experience, mentioning ref. GAB to Box 626.

SOUTHERN United Telephone Cables Ltd., Dagenham Dock, Essex, require a Dental Surgeon to attend for one or two sessions per week at newly equipped premises. Application should be made to the Personnel Officer.

ASSISTANT Dental Surgeon (lady or gentleman) required in busy modern practice in pleasant Northamptonshire town. Good working conditions, hours and holidays. Flat available. Usual astronomical salary.—Box 745.

BERKSHIRE. Qualified assistant required to commence March. Established modern surgery and equipment. Efficient staff. Small Market town. House available. Remuneration one-third of net takings or monthly salary with prospect of advancement.—Box 747.

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Agreements

The Council of the Association has had prepared for the use of Members—by the Solicitors to the Association and by Counsel—useful draft agreements for partners and assistantships, and these may be obtained on application to **the Secretary.** In addition, members are reminded that draft agreements for pupils and apprentices have been available at Headquarters for some years.

The charges for the respective agreements are as follows :

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ASSISTANTSHIP	2/6
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SALE OF A DENTAL PRACTICE ...	2/6
SALE OF A DENTAL PRACTICE BY A DECEASED PRACTITIONER'S REPRESENTATIVE	2/6
ASSISTANTSHIP AGREEMENT PROVIDING AN OPTION FOR SUBSEQUENT PARTNERSHIP	2/6

Please forward cheque with application for Agreements

BRITISH DENTAL ASSOCIATION
13, HILL ST., BERKELEY SQUARE, LONDON, W.1

LANCASHIRE. Young female Dental Surgeon (under 30 preferred) required to manage branch practice in heavily populated industrial area. Very great scope. Good holidays. Excellent salary and commission.—Box 749.

MANAGER wanted for Leeds practice for three months, April, May and June.—Box 751.

DENTAL Surgeon, with West End practice and teaching appointment, requires help young practitioner, preferably ex-R.D.H., in starting practice at Stanmore. Good standard and references essential.—Box 712.

SHARE in gross turnover for Dental Surgeon, or Dentist, willing to manage Northampton practice. Easy hours and pleasant conditions for operator who can take sole charge and run practice with energy and interest.—Box 664.

STIRLINGSHIRE. Young assistant or locum required. Apply stating age and experience, also salary required to—Box 662.

YOUNG Dental Surgeon needed as assistant in old established and high class practice, in very good West End suburb.—Box 658.

QUALIFIED assistant required in long established Somerset practice of good type. Congenial working conditions in pleasant surroundings. Very substantial remuneration according to experience and capabilities. Permanency preferred.—Box 652.

ASSISTANT wanted in old established, well equipped practice. Good salary, moderate hours. Pleasant West Cornwall seaside town.—Box 650.

DENTAL Surgeon required as assistant in Shropshire Market town. Good salary, plus bonus; five-day week.—Box 638.

YOUNG Dental Surgeon required to take charge of practice in N.W. London. Good conservative worker essential. Aged 25-35. Apply with testimonials to—Box 473.

DENTAL Surgeon required for conservative work in practice approximately 30 miles north London. Patients by appointment only. Hours and holidays to suit self. Remuneration 45 per cent of fees earned. Unlimited scope.—Box 350.

ASSISTANT Dental Surgeon wanted for large practice in East London. X-ray, etc. Modern methods encouraged and rewarded. Large staff. Excellent prospects for the right young man.—Box 330.

ASSISTANT with view to partnership required in old established modern practice, Lincolnshire. Keen conservative worker desired. Two partners, trained surgery and mechanical staff, three surgeries and one branch. No evenings. House obtainable.—Box 298.

SUBURBAN London practice, 9 surgeries, large workshop, in building adapted as clinic, has vacancies for full, part-time, evening and week-end operators. Full clinical autonomy, competitive remuneration. Keenness, amity and reasonable production essential.—Box 127.

LEICESTERSHIRE. Young, conscientious assistant will shortly be required in old established conservative practice. Modern surgeries, fully staffed. Salary and percentage by arrangement. Partnership considered.—Box 111.

NORTH Wales-Chester area. Two assistants required, view partnership if desired, for good-class practice now mainly N.H.S. but good standard of work maintained. Turnover about £15,000 per annum. Salary by arrangement, plus share profits. Hours 33 per week. Accommodation available if required.—Box 227.

EAST Africa. Will any capable young Dental Surgeon of good education and fond of sport, who is attracted by the thought of living in East Africa, please write to Cottrell & Co., 15-17, Charlotte Street, London, W.1, for the Advertiser's address? An assistantship and future partnership is offered in a prosperous and well-known practice. Further particulars gladly given by return Air Mail.

PERMANENT or long-term qualified assistant Dental Surgeon required by Dr. C. J. F. Pulley, 61a, Sydenham Road, S.E.26. Tel.: SYD 8658.

LICENTIATE required as soon as possible with view partnership. Male only. Good class Practice. Peterborough.—Box 634.

CROYDON area, one full and one part-time assistant required. Large first-class staff. Highest salary, commission or large share gross. Also assistant for practice good class Surrey country district.—Box 1012.

SUSSEX coast, Ferring-Arundel district. Vacancy for Dental Surgeon. Please quote terms for three or four sessions a week.—Box 789.

Wanted

L.D.S. recently returned to U.K., requires further appointment anywhere in world, preferably British Commonwealth, must be with view. Experienced in all branches, particularly conservation.—Box 753.

MANAGERSHIP or complete control with eventual purchase, wanted by experienced L.D.S. Competent in all higher techniques. Living accommodation essential.—Box 674.

LONDON Dentist seeks situation as assistant or partner in Kingston, Surbiton, Hampton or Teddington; would consider Wimbledon or Clapham.—Box 1026.

DENTIST of experience, married, desires position either to manage or rent practice in Berkshire, Surrey, Sussex districts or near London. Flat appreciated; good references.—Box 503.

DENTAL Anæsthetist would be available in London area to a busy Dental practitioner. N.H.S. fees.—Box 755.

SITUATIONS

Vacant

DENTAL demonstrator required to call on Dental Surgeons and Laboratories throughout the British Isles—languages an advantage. Applications with full details of past experience, age, salary, etc., to Dental Fillings, Ltd., 49, Grayling Road, London, N.16.

A GRADE I and a Grade II dental technician required for Croydon practice. Good wages and commission. Pleasant conditions.—Box 382.

EXPERIENCED chairside assistant required for West London practice. Must be keen and fully competent to assist in all modern dental methods.—Box 757.

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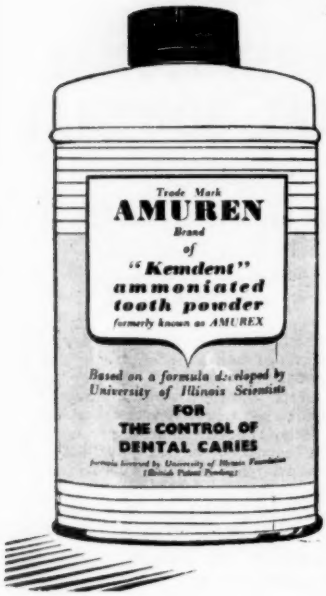

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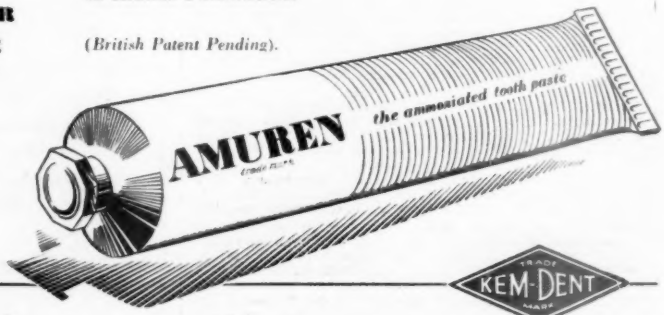

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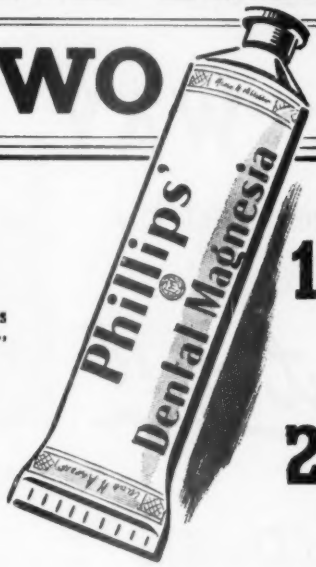

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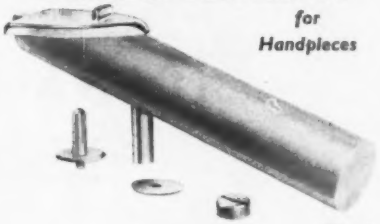

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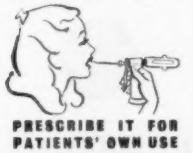

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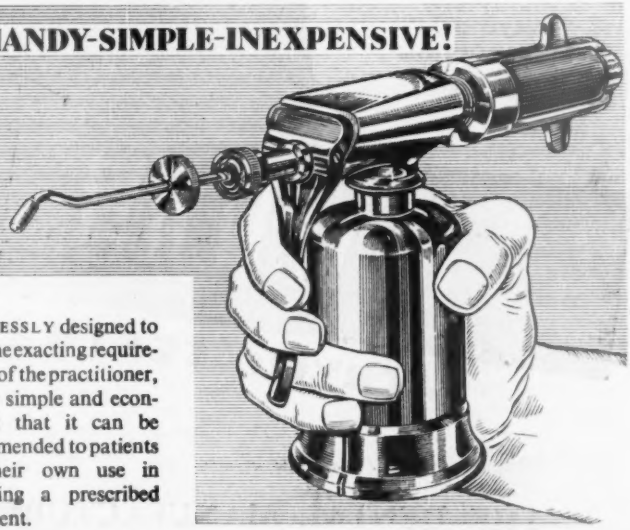

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BRITISH DENTAL JOURNAL

The Journal of the British Dental Association

VOL. XC JANUARY 2, 1951 No. 1

ORIGINAL COMMUNICATIONS

TIME OF ERUPTION OF PERMANENT TEETH AND TIME OF SHEDDING OF DECIDUOUS TEETH

BY H. H. STONES, M.D., M.D.S., F.D.S. R.C.S.ENG., F. E. LAWTON, B.D.S., F.D.S. R.C.S.ENG., E. R. BRANSBY, PH.D., AND H. O. HARTLEY, PH.D.

IT has already been reported (Stones, Lawton, Bransby and Hartley, 1949) that dental surveys were carried out in the National Children's Home, Frodsham, near Liverpool, from September 1942 to September 1946.

In March 1945 a large proportion of the children in the survey had their sixth consecutive six-monthly examination. Each child's complete sequence of three-year records thus provided some information on the times of eruption of permanent teeth and on the times of shedding of the deciduous teeth. By noting for a particular (say) deciduous tooth, the last examination when it was recorded as "present" and the subsequent examination when it was recorded as "shed," its time of shedding could be determined to within six months. Similarly the times of eruption could be determined to within six months. Although the margin of error of six months would be large if the results were based on *individual* teeth, yet, with a sufficiently large number of teeth, it nevertheless permits the determination of reasonably reliable average times of eruption and shedding.

Limitation of Data.—Before discussing the resulting histograms and tables below, it must be noted that the calculation of the times of shedding and eruption was complicated by a certain degree of selection of the data on which the calculations were based.

An eruption of a child's tooth was included in the analysis only if it occurred during *that* span of the child's life covered by the six consecutive six-monthly examinations. If a tooth erupted before the first or after the last examination its time of eruption is not known and the tooth is omitted from the calculation. This means that teeth with extreme times of eruption are more likely to be omitted than those erupted nearer the average time. The results further depend on the age distribution of the children examined and if the age distributions differ for boys and girls then the results for the two sexes are not directly comparable. The distributions of the children in September 1942, when the *first* examination was made, are given in Table I.

TABLE I

	Number of children		*Percentage distribution*	
Age	*Boys*	*Girls*	*Boys*	*Girls*
2	—	1	—	1
3	1	4	1	3
4	1	7	1	5
5	14	7	7	5
6	14	14	7	10
7	10	7	5	5
8	29	16	15	11
9	19	11	10	8
10	32	17	17	12
11	17	14	9	10
12	24	19	13	14
13	26	13	14	9
14	2	10	1	7
Total	189	140	100	100

The average age of the two sexes is about the same, namely 10·0 years for boys and 9·7 years for girls, but the girls are more frequently represented in the extreme age-groups. It should be noted that the ages below 8 (for boys) and below 6 (for girls) are not well represented and this results in a deficiency of very early times of shedding.

It is possible statistically to correct for the bias thus introduced into the data by the methods described in the Appendix. Here (Table V) it is shown that the required correction is small and it was not therefore applied in Tables II and III below, as these tables are mainly concerned with the comparison of corresponding teeth in the four different quadrants of the *same* children, a comparison which

TABLE II

Average Times of Shedding Deciduous Teeth, Including and Excluding Extractions

		Average age—years		Standard errors		Number of children	
		Boys	Girls	Boys	Girls	Boys	Girls
a | a	E	7·57	7·44	0·15	0·19	36	33
	I	7·65	7·35			40	35
a | a	E	7·01	6·47	0·17	0·19	27	32
	I	6·88	6·47			31	32
b | b	E	8·30	8·07	0·14	0·18	54	35
	I	8·29	8·13			58	37
b | b	E	7·99	7·49	0·16	0·19	42	30
	I	7·99	7·50			42	38
c | c	E	11·60	10·75	0·14	0·21	78	46
	I	11·56	10·86			91	55
c | c	E	10·73	9·83	0·13	0·22	94	41
	I	10·70	9·75			108	51
d | d	E	11·01	10·48	0·16	0·25	57	31
	I	10·25	10·14			90	41
d | d	E	11·32	10·63	0·18	0·26	49	29
	I	10·40	10·35			77	38
e | e	E	11·72	10·92	0·19	0·25	47	29
	I	11·10	10·74			70	42
e | e	E	12·05	11·65	0·21	0·24	39	30
	I	11·09	10·79			57	47

E = excluding extractions.
I = including extractions.

Average Times of Eruption of Permanent Teeth

	Average age—years		Standard errors		Number of children	
	Boys	Girls	Boys	Girls	Boys	Girls
1 | 1	8·10	7·67	0·19	0·18	45	29
1 | 1	6·85	6·81	0·23	0·19	30	26
2 | 2	8·85	8·66	0·12	0·16	59	37
2 | 2	8·12	8·05	0·15	0·16	39	35
3 | 3	12·24	12·01	0·14	0·20	74	52
3 | 3	11·41	10·67	0·12	0·18	108	65
4 | 4	10·93	10·47	0·16	0·20	91	52
4 | 4	11·40	11·43	0·15	0·19	96	59
5 | 5	11·38	11·11	0·17	0·21	82	49
5 | 5	12·12	12·01	0·18	0·20	72	58
6 | 6	6·72	6·60	0·09	0·12	30	31
6 | 6	6·91	6·57	0·09	0·12	31	29
7 | 7	12·43	12·11	0·11	0·13	93	62
7 | 7	12·16	12·21	0·11	0·14	86	57

TABLE III

Shedding and Eruption on Right Compared with Shedding and Eruption on Left. Average Age—Years

*Times of Shedding**
*(Natural causes only; extractions excluded)**

	e	d	c	b	a	a	b	c	d	e
Boys upper										
Av. ...	11·57	11·09	11·66	8·22	7·55	7·58	8·38	11·53	10·92	11·88
No. ...	24	31	41	27	19	17	27	37	26	23
Boys lower										
Av. ...	12·06	11·11	10·70	7·06	6·98	7·04	8·03	10·78	11·50	12·05
No. ...	20	22	44	22	14	13	20	50	27	19
Girls upper										
Av. ...	10·95	10·58	10·61	7·94	7·47	7·41	8·20	10·88	10·38	10·90
No. ...	13	16	22	18	18	15	17	24	15	16
Girls lower										
Av. ...	11·67	10·76	9·80	7·48	6·46	6·49	7·51	9·87	10·51	11·63
No. ...	14	14	20	15	17	15	15	21	15	16

*Times of Eruption**

7	6	5	4	3	2	1	1	2	3	4	5	6	7
Boys upper													
12·47	6·68	11·48	10·94	12·17	8·80	8·01	8·19	8·90	12·31	10·92	11·28	6·75	12·40
47	15	43	43	35	29	22	23	30	39	48	30	15	46
Boys lower													
12·14	6·89	12·04	11·42	11·37	8·06	6·82	6·88	8·18	11·47	11·38	12·22	6·93	12·18
43	16	39	50	56	18	13	17	21	52	46	33	15	43
Girls upper													
12·13	6·59	10·97	10·45	11·78	8·59	7·66	7·68	8·74	12·25	10·49	11·25	6·61	12·10
33	15	25	27	26	19	15	14	18	26	25	24	16	29
Girls lower													
12·24	6·59	11·01	11·39	10·55	8·03	6·78	6·84	8·07	10·81	11·45	12·12	6·55	12·18
29	14	31	25	34	17	13	13	18	31	34	27	15	28

*The average times of eruption are based on *all* permanent teeth irrespective as to whether the deciduous predecessor was lost naturally or extracted. These times are therefore *not* to be compared with the average times of shedding of deciduous teeth which are only for those lost through natural causes. (For shedding times for *all* deciduous teeth *see* Table II.)

is not biased by an uneven age distribution of the children.

A second difficulty concerns the extraction of deciduous teeth. It will be seen (Table II) that the average times of shedding of deciduous teeth through natural causes, as well as average times of losing deciduous teeth both naturally and by extraction, have been computed. Since extractions normally occur earlier than loss through natural shedding (Table II) there is a difference between these two averages.

The time of eruption of a permanent tooth depends to a certain extent on the time when its deciduous predecessor was lost. In the computations of average times of eruptions, *all* permanent teeth have been included irrespective of whether their deciduous predecessors were shed or extracted. It must therefore be remembered that the average times of eruption depend partly on the extractions of deciduous predecessors.

Histograms and Tables Showing Times of Shedding of Deciduous Teeth and Eruption of Permanent Teeth.—For both boys and girls and for each of the five deciduous teeth groups (a–e) and each of the seven permanent teeth groups (1–7), a frequency distribution of age of shedding or date of eruption was made. These are set out in the histograms and in these the frequencies contributed by extracted deciduous teeth are shaded. Data for teeth naturally shed, as well as those for all teeth combined, are summarised in Table II, giving their respective average times of shedding alongside the average times of eruption of all permanent teeth. In Table III, the average times of shedding and eruption for the four quadrants are tabulated separately.

Comparison of Upper Jaw with Lower Jaw (Table III).—As a general rule the deciduous upper incisors and canines (a, b, c) are shed later than the corresponding lower ones. Taking teeth a, b and c singly this difference is significant throughout with girls, but with boys for the canines (c) only. Correspondingly the permanent upper incisors and canines (1, 2, 3) are erupted later than the corresponding lower ones. This difference is significant for all three teeth, 1, 2 and 3.

For molars and premolars the position is generally reversed, viz. the lower deciduous molars are shed later than the upper ones, and the lower premolars and permanent molars are erupted later than the upper ones. For deciduous teeth the only significant difference is that the girls shed the lower deciduous second molars (e) later than the upper ones. For permanent teeth the lower premolars (4 and 5) are erupted significantly later than the upper ones for both sexes. For the permanent first molars there is no significant difference in the dates of eruption of upper and lower.

Left versus *Right Side* (Table III).—The times for corresponding teeth usually agree very closely. There is a slight but consistent tendency for the right permanent teeth, 1, 2, 3, 4 and 5,

TABLE IV

Shedding of Deciduous Teeth

Average Age—Years

Source	Tooth	Logan and Kronfeld Boys and Girls	Hellman Wealthy Boys	Hellman Wealthy Girls	Hellman Poor Boys	Hellman Poor Girls	Present study* Boys	Present study* Girls
a	Upper	6–7	7·10	6·80	7·13	7·21	7·57	7·44
	Lower		6·44	7·00	6·65	6·55	7·01	6·47
b	Upper	7–8	8·16	7·60	8·45	8·30	8·30	8·07
	Lower		7·44	6·97	7·74	7·59	7·99	7·49
c	Upper	10–12	11·47	10·72	11·31	10·78	11·60	10·75
	Lower		10·57	9·57	10·97	9·77	10·73	9·83
d	Upper	9–11	10·67	10·32	9·41	9·15	11·01	10·48
	Lower		10·84	10·13	8·72	8·84	11·32	10·63
e	Upper	10–12	11·47	11·06	10·13	10·01	11·72	10·92
	Lower		11·65	10·79	9·26	9·07	12·05	11·65

*Excluding teeth extracted.

Eruption of Permanent Teeth

Average Age—Years

Source	Tooth	Logan and Kronfeld Slightly Modified by McCall and Schour Boys and Girls	Present study Boys	Present study Girls
1	Upper ...	7–8	8·10	7·07
	Lower ...	6–7	6·85	6·81
2	Upper ...	8–9	8·85	8·66
	Lower ...	7–8	8·12	8·05
3	Upper ...	11–12	12·24	12·01
	Lower ...	9–10	11·41	10·67
4	Upper ...	10–11	10·93	10·47
	Lower ...	10–12	11·40	11·43
5	Upper ...	10–12	11·38	11·11
	Lower ...	11–12	12·12	12·01
6	Upper ...	6–7	6·72	6·60
	Lower ...	6–7	6·91	6·57
7	Upper ...	12–13	12·43	12·11
	Lower ...	11–13	12·16	12·21

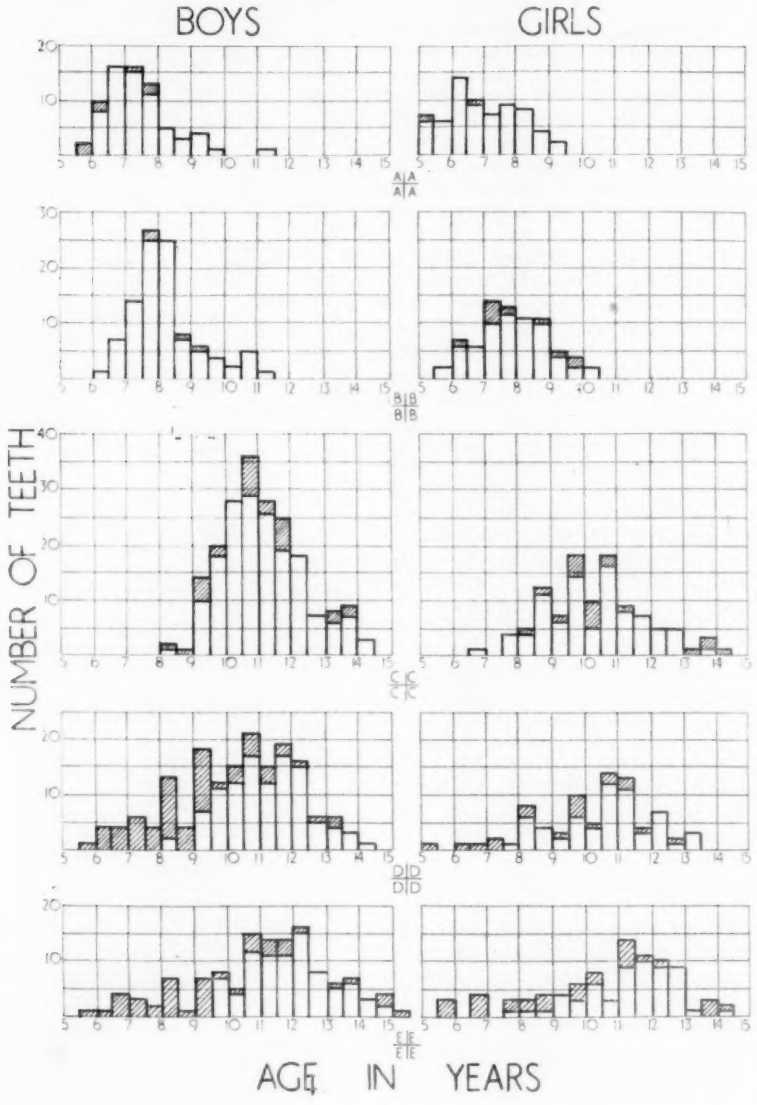
to erupt a little later than the corresponding teeth on the left.

Boys versus *Girls.*—This comparison is affected by the respective age distribution of the sexes (*see above*) but the resulting bias is small, as is shown in the Appendix. The following points are noteworthy. Boys shed their deciduous teeth later than girls provided the shedding is natural. The sex difference is particularly marked with the canines where the figures (Table II) are :

Age (in years) when shedding canines :

	Boys	*Girls*
Upper	11·6	10·7
Lower	10·7	9·8

HISTOGRAM SHOWING VARIATIONS IN TIMES OF SHEDDING OF THE DECIDUOUS TEETH



The difference is therefore 0·9 year, i.e. about ten to eleven months. A slightly smaller difference (seven to eight months) in the same direction can be observed for the molars.

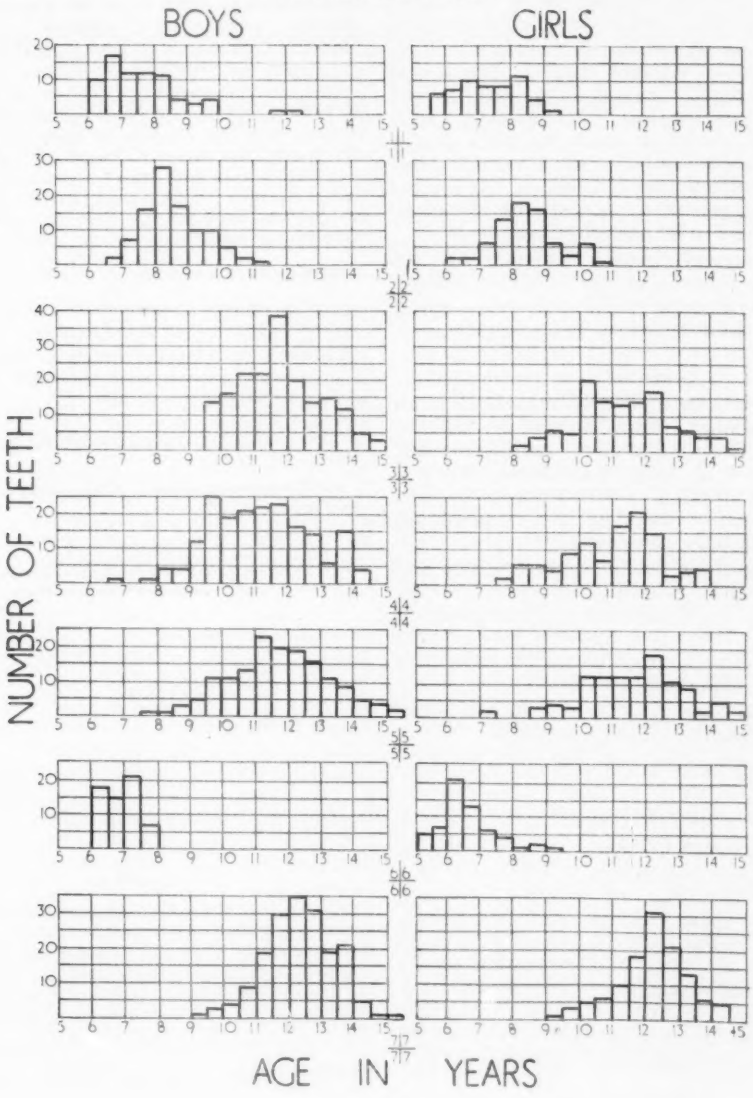
For first incisors the difference is insignificant, although boys again tend to be later with shedding.

Permanent teeth are erupted by boys at a slightly later age than by girls. Although the difference for individual teeth groups is not significant, except for lower canines, it is consistent for most groups and taken as a whole is significant.

Discussion

Shedding of Deciduous Teeth.—Figures obtained in previous surveys by Hellman (1923)

HISTOGRAM SHOWING VARIATIONS IN TIMES OF ERUPTION OF THE PERMANENT TEETH



and Logan and Kronfeld (1933) are given for comparison with the present study (Table IV). Hellman divided children into those from wealthy and poor parents, and found that the wealthy groups, although better nourished and ahead of the poor children in physical development, were later in shedding their deciduous teeth, and erupting their permanent teeth. The dates of shedding obtained in the present investigation fall generally within the range stated by Kronfeld, with a tendency to fall closer to the later limit, and tend to be later than those found by Hellman.

Eruption of Permanent Teeth.—In the well-known table of eruption dates of Logan and Kronfeld, slightly modified by McCall and Schour, the average age is not precisely stated, but the age range at which the teeth usually erupt (e.g. upper first incisors to 8 years) is given. The dates of eruption obtained in the present survey show general agreement with this table, but again tend to be nearer the later limit.

The findings of Cattell (1928) that girls are consistently more advanced in their dentition than boys, the greatest difference being shown by the mandibular canines, is confirmed.

Summary

From a dental survey in the National Children's Home, Frodsham, from September 1942 to September 1946, information was forthcoming on the time of shedding of deciduous teeth and the time of eruption of permanent teeth. The average times of shedding and eruption are presented for the various teeth.

Generally, the deciduous upper incisors and canines are shed earlier than the corresponding lower teeth. In molars, the position generally is reversed. There is a tendency for the right permanent teeth to erupt somewhat later than the corresponding teeth on the left.

Boys shed their deciduous teeth later than girls, providing the shedding is natural. Permanent teeth are erupted slightly later by boys than by girls.

Acknowledgments

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Statistical Appendix

Correction for Bias Through Variation in Age Structure

For an unbiased calculation of the distribution of (say) eruption times we would require that a number of (say) n children be observed for a sufficiently long period (say from 2 to 15 years) so that none of the times, shedding or eruption, can possibly be missed.

With such data every six months' span of life (such as, for instance, 6 years to 6½ years) is "covered," i.e. under observation an *equal* number of times (n times). With the present data, however, the period observation for each child is only three years*, commencing at varying ages as shown in Table I. Let g (t) be the age distribution of (say) boys (t in years). Then the number of boys contributing information to a six-monthly period commencing at t is given by $\int_{t}^{t+3} g(t)\,dt$. The chance ø (t) of observing a six-months' life span beginning at t is therefore proportional to this quantity.

Let now f′ (t) denote the true chance of observing an eruption time in the six-monthly span beginning at t and f (t) the observed proportion, then

$f(t) \backsimeq f'(t)\,\phi(t)$.

so that we can obtain the corrected proportions f′ (t) form

$f'(t) \backsimeq f(t) / \phi(t)$.

Below we give in Table V of ø (t) computed from the observed age distributions.

TABLE V

Table of Chance ø (t) Life Span of Six Months' Period Commencing at Year as Shown Below

Year	*Boys*	*Girls*
2	—	·002
3	·002	·012
4	·004	·029
5	·028	·044
6	·051	·068
7	·067	·068
8	·094	·090
9	·102	·083
10	·141	·107
11	·120	·103
12	·129	·122
13	·118	·112
14	·092	·103
15	·049	·056

With the help of Table V, and using the above formula for the proportions f′ (t), corrected frequency distributions were computed. The average times obtained from these corrected distributions are compared in Table VI with the uncorrected averages computed from the actually observed distributions shown in the histograms.

It will be seen from Table VI that there is a slight

*For the older children leaving the branch it may in certain cases be less.

TABLE VI

Correction of Average Times for Age Distribution

BOYS

	*Deciduous teeth**					*Permanent teeth**						
	a	b	c	d	e	1	2	3	4	5	6	7
Average of histogram	7·3	8·2	11·1	11·2	11·9	7·6	8·6	11·8	11·2	11·7	6·8	12·3
Corrected average	7·2	8·0	11·2	11·2	12·0	7·3	8·4	11·8	11·1	11·8	6·8	12·4

GIRLS

	*Deciduous teeth**					*Permanent teeth**						
	a	b	c	d	e	1	2	3	4	5	6	7
Average of histogram	7·0	7·8	10·3	10·5	11·3	7·3	8·4	11·3	11·0	11·6	6·6	12·2
Corrected average	6·7	7·7	10·2	10·5	11·2	7·1	8·3	11·3	10·8	11·6	6·4	12·1

*The average times of eruption are based on *all* permanent teeth irrespective as to whether the deciduous predecessor was lost naturally or extracted. These times are therefore *not* to be compared with the average times of shedding of deciduous teeth which are only for those lost through natural causes. (For shedding times for *all* deciduous teeth, *see* Table II.)

tendency for the uncorrected histogram averages to overestimate the times of eruption and the times of shedding of the deciduous first and second incisors (a, b).

This overestimate is caused by the deficiency of very young age-groups which was noted in Table I. The bias is, however, small and none of the conclusions is affected.

METABOLISM OF ALVEOLAR BONE[1]

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One of the most important problems underlying much of dental practice is that of understanding the processes of bone formation and resorption. Indeed there are few aspects of dentistry which do not depend upon either the proper functioning of these mechanisms or upon attempts to halt or prevent their miscarriage. Among the most obvious examples are *pyorrhœa alveolaris* in which the ultimate problem is that of stopping or, if possible, of reversing the resorption of the alveolus; in orthodontics the teeth are moved through the alveolus which involves simultaneous resorption and deposition of bone.

Due to the work of Robison and his colleagues and of others, some of the fundamental biochemical processes involved in bone formation have been elucidated. The rôle of phosphatase in providing inorganic phosphate is central and it seems probable that the presence of phosphorylase and a suitable polysaccharide provide the necessary local concentration of substrate for the phosphatase to hydrolyse. Evidence for the functioning of this system has been drawn from studies of developing bone and teeth, and of rapidly calcifying areas such as those of healing rickets. There is little evidence that this mechanism maintains adult bone. Our knowledge of the local processes involved in the resorption of bone is negligible and most hypothetical explanations depend upon systemic effects such as changes of ionic concentration in the blood. The direct evidence that these changes are related in a causal manner to the local or even to the general removal of bone is necessarily slender.

In comparatively recent times new concepts of the general state of the body constituents have been introduced by the use of tracer elements (cf. Schoenheimer, 1941; Hevesy, 1948). Isotopes of elements such as Ca, I, N and P are administered to animals. Their course can then be followed because they are either spontaneously disintegratory (i.e. radio-active) or, alternatively, they have an atomic mass distinguishing them from the normal element. The chemical and biological behaviour of these isotopes is identical with that of the normal elements, unless the processes studied are dependent upon atomic mass such considerations as the latter rarely enter biological experimentation.

Application of these tracer techniques to the study of the skeleton has revealed that it, in common with most other constituents of the body, is in a state of dynamic equilibrium. Calcium, phosphate and carbonate are constantly entering and leaving both the bones and the teeth (Hevesy, 1948).

The work of Hevesy, Levy and Rebbe (1940), Manly and Bale (1939) and Manly, Hodge and Manly (1940) has shown that phosphate enters the trabecular epiphyseal bone at a much faster rate than it does the diaphyseal bone. This, together with the observations of Bauer, Aub and Albright (1929), who showed that during Ca deprivation the metaphyseal trabecular bone of animals disappeared, whereas no change could

[1] Read at the Annual Meeting of the British Dental Association, Birmingham, July 13, 1950.

be detected in the diaphyses, suggested that the trabecular bone is both more metabolically active and more labile. Such clinical information as we have suggests that alveolar bone is even more labile than metaphyseal bone. It, therefore, seemed of interest to examine the rate of turnover of this bone, thus obtaining an indication of its metabolism. During this work an examination was also made of the degree of calcification of the alveolus. It is clearly impossible to use human material in such studies as these and consequently the investigation has been conducted on experimental animals using the comparative method. The bones from cats, rabbits, rats and ferrets have been examined.

Methods

The methods used for cleaning and preparing the bones for examination have been described elsewhere, Weidman and Rogers (1950), as also have been the analytical procedures. In the isotopic studies, a solution of $Na_2HP^{32}O_4$, equivalent to approximately 30–50 μC per kilogram of body-weight, was injected intraperitoneally. Four hours afterwards the animals were killed by exsanguination under ether anæsthesia, and the bones dissected. The radioactivity in the trichloracetic acid extracts of the cleaned, dried, defatted bone powders, prepared as already described (Weidman and Rogers, 1950) was estimated with a Geiger-Müller liquid counter and a standard scaling device. The radioactive counts were related to the concentration of phosphate in the extracts and the results were expressed as counts per mg. P divided by the dose of P^{32} administered per kilogram body-weight of animal. Radioactive estimations were also made on the inorganic phosphate in the blood plasma. To do this 10 ml. of 20 per cent trichloracetic acid were added to 5 ml. of plasma prepared from blood taken into fluoride solution. The precipitated proteins were removed by filtration and the supernatant used for radioactive and inorganic phosphate determinations.

Results

Analytical Results

These have been presented in full elsewhere together with their statistical analyses (Weidman and Rogers, 1950) and will only be given in summary form here (Table I).

Inspection of Table I reveals two points relevant to the present discussion. Firstly the femoral metaphyseal bone from the four species of animals examined contains less calcium and more nitrogen than the femoral shaft bone. The results are statistically highly significant (probability $< 0{\cdot}01$). Secondly, the

TABLE I.—SUMMARY OF THE MEAN RESULTS FOR THE COMPOSITION OF THREE TYPES OF BONES TAKEN FROM GROUPS OF ANIMALS

	Diaphysis			*Metaphysis*			*Alveolus*		
	Ca	N	P	Ca	N	P	Ca	N	P
Cat ...	27·3	4·13	12·0	25·1	5·00	10·9	25·3	4·83	11·0
Rabbit	27·3	3·36	12·4	25·2	4·43	11·4	28·0	2·94	12·7
Rat ...	27·9	3·35	12·4	26·2	3·94	11·5	27·1	—	11·9
Ferret	27·3	4·09	12·2	24·9	4·69	11·2	26·0	4·63	11·6

alveolus of the four species shows no consistent relationship in its composition to either the shaft or to the trabecular femoral bones. In the rabbit it is more calcified than either the diaphysis or the metaphysis. In the cat it is similar to the metaphysis, in the rat to the diaphysis. The differences in type of dentition of the four species of animal may be noted; that the rabbit has constantly growing molars, the rat, constantly growing incisors only and the cat, a permanent secondary dentition.

Metabolic Results

The results obtained are summarised in Table II. It will be seen that the mean rates of turnover of phosphate in the alveolus from all the species is intermediate between that of the metaphysis and that of the diaphysis. The ratios of the rates of turnover (Table III) obtained by arbitrarily assigning the figure of 100 to the rate for the trabecular femoral bone do not reveal any significant difference between the four species. There is a very considerable variation in the specific activity results (Table II) for the individuals within species. This is reflected in the very high coefficients of variation which are of an entirely different order from those for the analytical results (Weidman and Rogers, 1950). In all the animals, however, the rates of the turnover for the three bones are in the same order. This is demonstrated more clearly in Table III. Inspection of Table II shows that the phosphate enters

TABLE II.—THE RATE OF METABOLISM OF BONES FROM VARIOUS SPECIES OF ANIMAL MEASURED BY THE SPECIFIC ACTIVITY FOUR HOURS AFTER THE INTRAPERITONEAL INJECTION OF P^{32}

Counts/mg. P × 10^6

Species of animal		*Administered counts/kilogram body wt.*			
		Femur	*Alveolus*	*Metaphysis*	*Plasma*
Cats	Mean ...	12·8	56·0	197·8	27,200
	S.D.* ...	4·5	13·1	64·8	4,350
	C.V.† ...	34·6	23·4	32·2	16
Rabbits	Mean ...	56·8	278·4	475·0	16,840
	S.D.* ...	25·3	126·0	148·0	7,400
	C.V.† ...	44·8	44·5	31·2	43·8
Ferrets	Mean ...	31·3	89·7	207·3	13,966
	S.D.* ...	12·5	26·3	55·2	5,520
	C.V.† ...	40·0	29·3	26·7	39·7

*Standard deviation.
†Coefficient of variation.

TABLE III.—RELATIVE TURNOVER RATES OF P^{32} IN THE DIFFERENT BONES OF THE VARIOUS SPECIES. THE ARBITRARY VALUE OF 100 IN EACH SPECIES HAS BEEN ASSIGNED TO THE METAPHYSEAL RESULT

		Femur	*Alv.*	*Metaphysis*
Cats	Mean	7·4	28·8	100
	S.D.*	3·6	4·8	—
	C.V.†	48·3	16·8	—
Rabbits	Mean	14·2	62·5	100
	S.D.*	4·3	27·7	—
	C.V.†	30·0	44·2	—
Ferrets	Mean	15·5	41·6	100
	S.D.*	5·3	11·8	—
	C.V.†	35·8	18·6	—

*Standard deviation.
†Coefficient of variation.

the cat bones at a significantly lower rate than it does those of the rabbit. Statistical analysis shows that, despite the big variation between individuals of the species, this result is highly significant for all three types of bone. The cat and the ferret differ in the rate of metabolism of their diaphyseal bone, but resemble each other in their metaphyseal and alveolar bones.

Discussion

From the results presented it can be seen that the metabolic activity of the femoral bones is altogether more variable than is their composition. There is little variation from individual to individual or from species to species in the composition of the same type of femoral bone, whereas there are big differences between individuals and between species in metabolic activity. Current explanations for the mechanism of the exchange of phosphate and calcium account for the process in terms of direct interchange between the ions in the plasma and those in the calcium phosphate-calcium carbonate crystals of the bone. If this were so then we should be forced to attribute the differences in rates of metabolism of the various bones to the rates of penetration of phosphate into the bone crystals. This presupposes either that the degree of distribution of the plasma within the bones is very different or that the size of the crystals in the bone is not constant and hence that those in the trabeculæ present a greater surface than do those in the diaphysis. The first of these explanations would seem to be eliminated on a number of counts. Firstly, histologically the individual trabeculæ of the metaphysis and alveolar bones are not supplied with systems of canals as are the shafts of the diaphyseal bone. Yet the rate of metabolism of the trabeculæ is much faster than that of the diaphyseal bone. Secondly, the trabecular alveolar bone always metabolises very much more slowly than the trabecular metaphysis yet histologically there appears to be little difference between the two types of bone. The second possibility of different crystal size is rather more difficult to eliminate at the present stage, since no direct comparative measurements are available. Nevertheless, one would expect a correlation to exist between the rate of turnover and degree of calcification, if this were a true explanation. The smaller the crystals the greater the volume of the space between them filled with plasma and hence the greater the amount of nitrogen. Such a correlation exists between the composition and the rate of turnover of the diaphysis and metaphysis. None, however, is to be found when the results for alveolar bone are examined. The rabbit alveolus, for example, is more calcified than the diaphysis yet the rate of turnover is very much greater. In the cat, on the other hand, the alveolus resembles the metaphysis in composition but metabolises much more slowly. Thus neither of the possible explanations of the different rates of penetration of the phosphate into the bone salt is acceptable and it may be that the conception of a simple inorganic exchange from the plasma is itself inadequate.

Further work on this problem together with a full account of the metabolic results will be published later.

Summary

(1) The composition of the alveolar bone varies from species to species whereas that of the femoral diaphyseal and metaphyseal bone is relatively constant.

(2) The rate of metabolism of the mandibular, molar, alveolar bone is slower than that of the metaphysis but more rapid than that of the diaphysis. This is true for all the species of animal examined.

(3) The individual animals appear to show marked variation in rate of skeletal metabolism.

(4) Different species have differing rate of skeletal metabolism.

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DISCUSSION

Mr. F. E. HOPPER said he would like to congratulate Dr. Rogers on a very clear and lucid exposition of a piece of fundamental research in a field where previously such detailed information was of necessity very limited. The use of radio-active isotopes in this way was providing a powerful weapon in helping to solve the many problems which posed themselves in this exceedingly important field of bone metabolism, and he realised that many years' work would be required brefore the answer appeared in sight. Assuming from Dr. Rogers' findings that there was a continuous exchange of calcium and phosphorous between the bone and the surrounding fluids without any change in the morphology of the bone tissue, he asked could Dr. Rogers give them any information on the mechanism of actual bone removal. The idea of halisteresis, a removal of minerals from an organic matrix, was now discredited, and yet in areas where bone was being removed, the presence of osteoclasts was relatively infrequent. What clues could Dr. Rogers give them about the factors which cause a variation in the structure of the bone tissue. He suggested that an investigation by means of radio-active isotopes might be carried out on the alveolar bone which was in the process of reconstruction by removing the teeth and allowing a period of time to elapse before carrying out the experiment.

Dr. ROGERS said the state of dynamic equilibrium in which the body constituents appeared to exist was maintained by the contrary processes of deposition and removal working against each other. Bone resorption might then be due to either a slowing up of the former process or to the acceleration of the latter. It was at present impossible to decide between these possibilities. Such a hypothesis for the mechanism underlying morphological changes in the skeleton assumed that the observed exchange in the bone salts was not simply an ionic one between the components of the bone crystallites and the ions in the plasma. The work was being concentrated upon this aspect and he could not say more at the present time.

As a biochemist he did not feel competent to discuss the relations between osteoclasts and bone resorption, a subject upon which disagreement had occasionally been heard between histologists themselves. If their ideas are right the exchanges observed might well be mediated by the various cells present in bone. The suggestion of studying the uptake of inorganic salts into an area of repair such as that present in the alveolus after tooth extraction was certainly an attractive one and would be borne in mind.

Replying to Mr. E. C. Fox who asked whether he thought that an injection of a bone extract of a heterogeneous species could influence alveolar bone metabolism, Dr. Rogers said he had had no personal experience of the use of bone extracts in inducing bone formation but there was considerable evidence in the literature that ectopic bone could be formed by the repeated intramuscular injection of alcohol extracts of homogeneous bone.

Mr. R. D. EMSLIE said that, as a disciple of Drs. Weinmann and Sicher, he had been rather shaken by some of Dr. Rogers' statements. He had understood that the only way in which calcium could be removed from bones in the body was by osteoclastic resorption, involving a simultaneous removal of matrix and bone salts. The findings of Drs. Rogers and Weidmann seemed to suggest that physiologically the inorganic elements of bone might also be removed by other methods. The difference in the rate of metabolism of bones, as measured by the turnover rates of P^{32} in the species examined, might be due to the fact that certain animals, such as the rat and presumably the rabbit, continued growing throughout their life at a gradually decreasing rate. He wondered how the figures for metabolism in bone varied at different ages and whether these were merely reflections of the amount of bone deposition and modelling resorption occurring at the same time. Finally, he would like to ask Dr. Rogers whether he had been able to isolate osteoid and examine its metabolic activity.

Dr. ROGERS said there was no necessary conflict between the established fact that removal of bone involved the disappearance of both the organic matric and inorganic salts and the observed dynamic equilibrium in which the latter existed. The components of the matrix, in common with almost all other tissues in the body, also remain approximately constant in amount by virtue of the dynamic equilibrium. Thus, in bone, the set of events which upsets the inorganic equilibrium may also upset that of the organic components. There were, however, several alternative explanations for the simultaneous removal of the matrix, and, therefore, no real theoretical difficulty existed in accounting for the concomitance of the two processes.

It seemed unlikely that the uptake of tracer elements could be accounted for in terms of accretion of bone due to growth. Firstly, measurements were made only 30 minutes to 4 hours after injection—i.e. uptake was measured in only short times; secondly, the uptake was demonstrable in the centre of the shaft of the bone where accretion due to growth of a long bone was at a minimum; thirdly, uptake was still very active in fully adult non-growing animals.

Mr. M. V. STACK said that his recent work of investigating this problem with regard to dentine had been mentioned by Dr. Rogers in answering Mr. Emslie's question about estimating the quantity of organic matrix present. He had found the percentage of nitrogen in isolated dentine collagen to be close to that reported by Dr. Rogers for bone collagen, but different from that determined on purified animal hide collagen, the form of this protein which has been most studied. He would like to ask whether the rate of metabolism of the matrix was being investigated by the use of carbon or nitrogen isotopes.

Dr. ROGERS said there were sufficient preliminary results in the literature to show that the matrix of bone did exchange its N and C. The difficulties about extending these observations by the use of isotopic nitrogen were technical in that no useful radio-active isotope of N existed and a mass spectrograph must be available if N^{15} was to be used as tracer. The use of radio-carbon was technically easy but the interpretation of results depended upon further knowledge of the matrix—a subject at the moment under study.

FACIAL PROSTHESES

By E. MATTHEWS, D.D.S., Ph.D., D.I.C., F.D.S. R.C.S.Eng.,
Department of Dental Prosthetics, University of Manchester

The advent of the National Health Service has, in one's own experience, led to a spurt in the demand for prosthetic restoration of the face and hands. It seems opportune, therefore, to review the situation in the light of the techniques now obtaining.

Impression Technique

The choice of material for impressions varies with the extent of the area involved. Whereas formerly it was usual to take a full face mask in Dentocoll, further experience has tended towards a reduction in the area recorded and, therefore, sectional impressions using a thin mix of Zelex are now more frequently resorted to. The Zelex liquid is diluted with an equal volume of water before use. For this purpose the area to be covered is walled off by means of a 2 in. high strip of black carding wax which can be readily adapted to the tissues. The hair bearing area involved, e.g. eyebrows, is best covered with a thin coat of vaseline. The Zelex mix is poured gently on to the tissues and even distribution ensured with the aid of a spatula or the index finger.

Records

In many cases it is desirable to record on the tissues certain anatomical landmarks, e.g. interpupillary line; external and internal canthi, inferior, superior and anterior borders of the ear, etc. These recordings are obviously developed by analogy with the sound side of the face using straight edge and or compasses. Using indelible pencil, such recordings appear on the Zelex impression and are translated to the stone model (Kaffir D) which is ultimately poured up.

In many cases the skin colouring and that of the eyes will be wanted. To this end a colour chart constructed from specimens of the materials employed is of great assistance, and a sketch showing distribution of colour is an added advantage.

Where ears and noses are concerned the most effective results are unquestionably obtained by the use of wax preforms copied from natural ears and noses of suitable form. Where a large body of students is available, one can usually be found who will act as a model for the reproduction of a suitable nose or ear.

The routine is to take a Zelex impression of the selected nose or ear and then pour up a wax shell in it for subsequent grafting on to the master model of the patient's face. Alternatively, a suitable selection is made from a stock of master models of ears and noses for each of which a corresponding soft rubber (Latex) mould has been made. Wax is poured into the selected rubber mould, chilled and the wax form shelled out.

Laboratory Procedure

In straightforward cases of noses and ears the skilful adaptation of the wax preform mentioned above is carried through with minimal manipulation of the wax so as to preserve the surface characteristics of the natural part. In the case of orbits, it is not possible to reproduce so completely a natural part and therefore a good deal of freehand carving and adaptation of the wax is necessarily involved. It is obvious that the sculptoring and skill will vary with the individual but rarely can Nature be equalled or bettered.

Depending upon the material to be used one either pours a plaster overcast, or the wax form is carefully removed and invested in plaster in the usual manner.

Materials Used

The success of the restoration is in very large measure dependent upon the wise choice of material and it must be confessed that there is at present no one material which can be regarded as ideal from the standpoint of lightness, texture, colouring and permanence.

The following materials are employed from time to time in the different types of case.

Rubber Latex.—This material, sold under a variety of trade names, has many excellent attributes with one outstanding limitation, that of shortness of life. It is still the method of choice for the production of fingers and once patients have had latex noses they rarely take kindly to the heavier and less flexible alternative materials. I have had a patient wearing these noses for the last eight years for whom I have made noses in a wide range of other materials but she persists in preferring the latex prosthesis in spite of the fact that the average life is of the order of two or three months. With care the two-piece plaster moulds last many years so that the pouring up of replacements is not unduly tedious.

I use the Revultex brand of pre-vulcanised latex and colour it with the I.C.I. range of Vulcafor pigments made up in ½ per cent sus-

pension with a suitable dispersing agent (Dispersol L.N.).

The colours most commonly used are Vulcafor Red M.S., Vulcafor Yellow G.T.S., Vulcafor Green L.S., and the amounts employed obviously vary with the colour required. 15 per cent zinc oxide is used as an opacifier. A typical formula is :—

For every 10 c.c Revultex add	10 drops	15 per cent ZnO.
	6 drops	Vulcafor Red M.S.
	1 drop	,, Yellow G.T.S.
	½ drop	,, Green L.S.

The two-piece mould in the case of a nose is dried out at 70° C. and the prepared latex poured into the cold mould. It is allowed to stand for fifteen minutes or longer, according to the ultimate thickness required. The excess is poured out and the mould placed in the oven for twelve to twenty-four hours at 70° C. to remove the excess water. On removal French chalk is dusted into the inner aspect of the mould and the prosthesis is then removed and trimmed.

The patient can easily modify the colour by the use of cosmetics. It is possible to obtain a range of Waxolene colours (I.C.I. Ltd.) for the modification of surface colouring but as these are rather powerful colouring agents great delicacy in handling is called for.

Acrylic Resin.—This material is sufficiently well known not to need much comment. Variation of colouring by the use of appropriate tinters is obvious and by virtue of its permanence it is the method of choice where movement of underlying tissues is minimal.

It has been the method of choice for very successful results in the construction of orbital prostheses, ears and some noses in much scarred cases of lupus. A modification that has occasionally been used is to employ a hard acrylic base on which is processed a soft resin (plasticised poly-vinyl chloride) restoration.

Plasticised Poly-Vinyl Chloride (P.V.C.).—This material has been put on the market in both this country and America already tinted for use in the construction of facial prostheses. My own choice is the use of P.V.C. powder (Corvic—I.C.I. Ltd.) with which I mix a plasticiser-dibutyl phthalate—in the proportions 10 c.c. powder to 4 c.c. of plasticiser. The resulting cream can then have added to it appropriate amounts of colouring materials, e.g. pale English vermilion or the above-mentioned Vulcafor pigments made up as suspensions in either methylated spirit or the plasticiser.

A few drops of the chosen colouring agents are incorporated and the material, which is initially of the consistency of thin cream, is either poured or allowed to stiffen (by placing in a warm oven for a few minutes) and then compression moulded and cured at 140° C. for 1 hour.

The criticisms that one has to offer in the use of this material are :—

(1) Tendency to surface shininess on wearing.
(2) Relative heaviness.
(3) Slight orange discoloration around the margins.

Polythene.—This material is potentially attractive by virtue of its lightness and its great chemical stability. It is slightly flexible and it is possible to make it more so by the admixture of a proportion of polyisobutylene.

Polythene is obtainable in a number of grades and the precise material used in the present work has been Alkathene, grade 70 (I.C.I. Ltd., Plastics Division). The material is obtained in small granules and placed in a mortar, warmed to softening point in an electric oven and small quantities of suitable colouring materials are rubbed in with a pestle. The resulting viscous mass is then transferred to the reverse half of the mould flasked as for a denture.

The other half of the flask is placed in position and the whole closed under a flask press. The use of this material has been limited but it is mentioned because further experimentation may lead to improved properties and technique. It has been found useful in sheet form as an abdominal wall reinforcement and in the form of tubing in certain neurosurgical techniques.

Method of Attachment

The precise mode of attachment employed varies with the problem in hand so that a uniform method cannot be given. The use of spirit gum for the attachment of latex and polythene noses is most usual. The more rigid type of nose prosthesis is commonly attached by fine gold spurs to spectacles, as have been some of the orbital prostheses. More recently, through the co-operation of Professor T. Pomfret Kilner, it has been possible to develop the "monocle" technique for the retention of other orbital prostheses. This has the obvious advantage of enabling the patient to dispense with glasses on occasions.

Much can be done to assist the prosthetist by the intelligent prior preparation of the involved area. For example, ears have been attached by the use of small tissue loops into which are inserted hook-like pegs on the under surface of the prosthesis.

It is hoped that the foregoing review of the problems involved will be of some assistance to those interested in this field of work. Apart from a very extensive literature the following

textbooks are likely to be of value to those starting this type of work :—

Clarke, C. D.: Facial and Body Prosthesis. The C. V. Mosby Co., St. Louis.

Brown, A. M. : Modern Plastic Surgical Prosthetics. William Heinemann (Medical Books) Ltd.

I am indebted to Mr. H. M. McIntyre, M.B., B.D.S., for collaboration in a number of these cases and to Mr. E. Shaw who has skilfully and imaginatively carried out much of the technical processes.

SHORT COMMUNICATIONS

A CASE OF INTERNAL RESORPTION FOLLOWING INJURY

By F. A. C. OEHLERS, L.D.S.Singapore

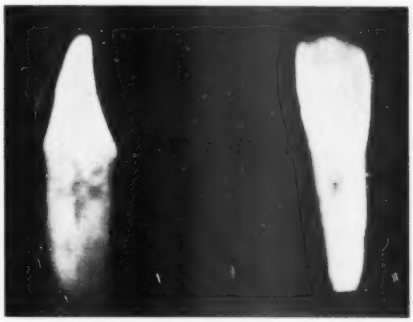
Case Report.—The patient was a male Chinese aged 35. It was noticed during routine examination that the left first mandibular incisor, which was slightly external to the arch, was discoloured. The adjacent lateral incisor, which was later found to possess a "pink spot," was, in every respect, clinically normal. The patient remembers having had a blow on the lower jaw many years previously. Since then he had experienced no discomfort.

Radiographical Findings.—The left central mandibular incisor showed some resorption of its apex and a localised area of periapical rarefaction.

The left lateral incisor had an irregular roughly oval radiolucent area within the root immediately below the anatomical neck. The apex appeared slightly resorbed and the surrounding bone sclerosed.

It was decided to extract the two teeth and a radiograph was taken of the lateral incisor.

The labio-lingual view of the tooth (fig. 1B) shows the same features as described above.



A B

FIG. 1 A and B (× 2).—X-ray appearance of left mandibular second incisor. Note how much more extensive the lesion is labio-lingually than mesio-distally.

In the lateral view (fig. 1A) the outline of the radiolucent area is very irregular with several extensions directed labially and lingually, but nowhere do they reach the surface of the root. The pulp above and below this area has receded markedly and appears as a narrow dark line.

Pathological Findings.—The lateral incisor was decalcified and axial labio-lingual serial sections were prepared.

In the cervical half of the root a large area of the original dentine has been resorbed from the pulpal aspect (fig. 2). The outline of this area is very irregular with several Howship's lacunæ and in the dentine beyond are small isolated areas of resorp-

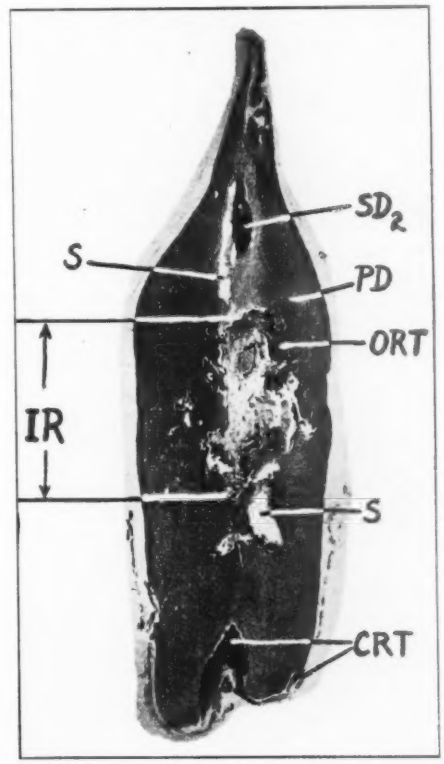


FIG. 2 (× 6).—Axial labio-lingual section (decalcified) through tooth mesial to central plane. Note the irregularity in outline of the area of internal resorption. Osseous repair tissue can be seen at the periphery of the lesion replacing lost dentine. Incisally coarse granular secondary dentine is present and the apex, which is truncated and resorbed, shows presence of calcified repair tissue which extends to the lateral aspect of the root. IR = area of internal resorption ; ORT = osseous repair tissue ; PD = primary dentine ; SD_2 = coarse granular secondary dentine ; CRT = calcified repair tissue of apical area ; spaces such as S are artifacts.

tion. These can be seen in serial sections to communicate directly with the main lesion.

The resorbed area and the rest of the pulp space are occupied by loosely arranged collagen fibres through which a few blood vessels pass. There are also areas of hyaline degeneration, and numerous fat spaces are scattered throughout (figs. 3, 4, 5 and 6). The odontoblasts and finer elements of the pulp have disappeared throughout the entire pulp. No osteoclasts are in evidence and only a few degenerating unidentified cells (probably fibroblasts) can be found. At the periphery of the resorbed area,

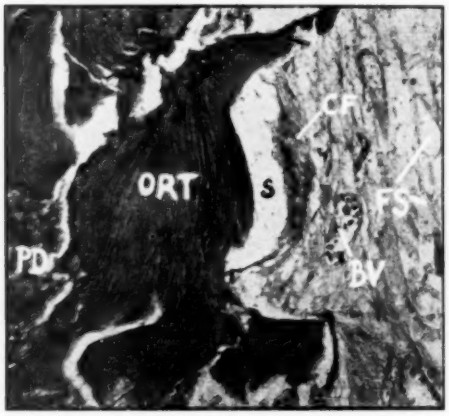


FIG. 3. (× 88).—Section showing typical laminated structure of the osseous repair tissue of main lesion. The loose arrangement of collagen fibres and fat spaces are also well demonstrated. ORT = osseous repair tissue; PD = primary dentine; CF = collagen fibres; FS = fat space; BV = blood vessel; S = artifact.

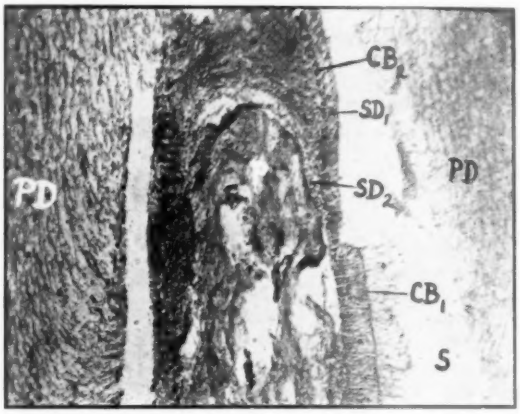


FIG. 4. (× 88).—Part of section near incisal edge of tooth to show the coarse granular secondary dentine. PD = primary dentine; SD_1 = tubular secondary dentine; SD_2 = coarse granular secondary dentine; CB_1 = calcified barrier between primary dentine and tubular secondary dentine; CB_2 = calcific barrier between tubular secondary dentine and granular secondary dentine; P = pulp comprising of collagen fibres and few blood vessels; S = artifact.

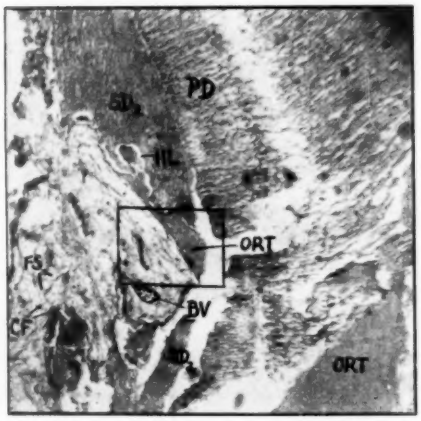


FIG. 5 (× 88).—Field showing resorption of coarse granular secondary dentine (SD_2) and replacement by osseous repair tissue. SD_2 = coarse granular secondary dentine; PD = primary dentine; HL = Howship's lacunæ; ORT = osseous repair tissue; FS = fat space; CF = collagen fibres; BV = blood vessel.

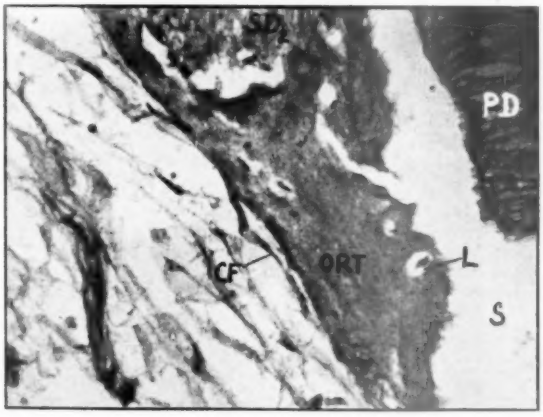


FIG. 6 (× 352).—Enlargement of area outlined in fig. 5, showing osseous repair tissue. Note the absence of osteoblasts and the arrangement of collagen fibres bordering the tissue. The lacunæ are occupied by degenerating cells. ORT = osseous repair tissue; L = lacunæ occupied by degenerating cells; CF = collagen fibres; SD_2 = coarse granular secondary dentine; PD = primary dentine; S = artifact.

and replacing lost dentine, are masses of calcified tissue resembling bone (figs. 3, 6 and 7). These masses are distinctly laminated, though the degree of lamination varies, and possess lacunæ but no canaliculi and no Haversian pattern. Most of the lacunæ are empty but in a few can be seen remnants of degenerating cells. There is an absence of cells bordering this osseus tissue but, instead, in some areas there appears to be a condensation of collagen fibres suggesting that they are being incorporated in this calcified tissue by deposition of calcific material thus giving it its laminated appearance (CF in fig. 6).

Above and below this lesion the pulp has receded and coarse granular secondary dentine faintly laminated in areas has been formed. It possesses several lacunæ but no tubules (figs. 4, 5 and 6). As it nears the main area of resorption the secondary dentine is itself resorbed and replaced in some parts by the osseus repair tissue described above (figs. 5 and 6). On the incisal aspect, this coarse granular secondary dentine is separated from the primary dentine by a thin layer of tubular secondary dentine (fig. 4 SD_1). On each side a calcific barrier shuts off the tubular secondary dentine from the primary dentine and coarse secondary dentine respectively (fig. 4 CB_1 and CB_2).

The apex of the root is truncated (fig. 2), and there is ample evidence of resorption. Repair has taken place here by the deposition of a calcified tissue closely resembling the coarse secondary dentine described above. It is, however, a somewhat denser material (fig. 7). The root canal passing through this tissue contains collagen fibres and one or two blood vessels.

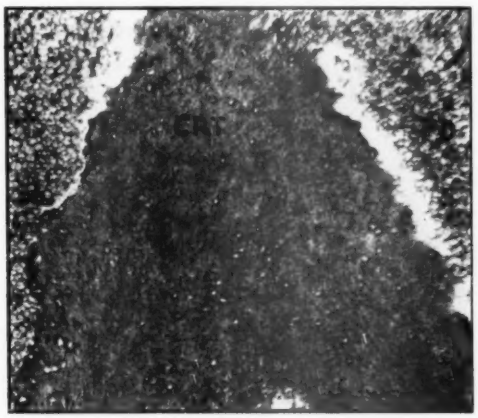


FIG. 7 (× 88).—Section showing structure of calcified repair tissue at apex of root which is shown in fig. 2, to extend to lateral aspect of root apex. CRT = calcified repair tissue ; PD = primary dentine.

DISCUSSION

Since Mummery's papers on the subject of " pink spots " (1920, 1926), there has been much interesting discussion on its ætiology. Mummery believed it to be a form of chronic pulpitis with hyperplasia associated with trauma and caries. Others have suggested that the lesion commences externally in the periodontal membrane and finally involves the pulp. Fish (1948) and Thoma (1946) believe that this condition can arise both from without as well as from within the root. Fish, whilst agreeing that internal resorption can be a result of traumatic injury, states that the majority are in fact neoplasms, which he has named endodontomas. He differentiates these from those originating in the periodontal membrane and to which he has given the name odontoclastoma.

The case under discussion is particularly interesting because apart from possessing an area of internal resorption there is resorption of its apex with repair and also the presence of coarse secondary dentine.

As has been stated, there is no communication laterally between the " pink spot " and the periodontal membrane. If, in this case, then, the lesion commenced externally in the periodontal membrane, it could only have done so at the apex and proceeded along the line of the root canal. Euler (1929) has observed this to occur. Here, however, this is not likely as the lesion is separated from the apical tissues by a calcified repair tissue, which obviously is not a product of the lesion itself. It is more likely that as a result of injury at an age when the root of the lateral mandibular incisor was not quite completed, a rarefying periodontitis was set up. Hence the truncated appearance of the apex and the numerous old Howship's lacunæ. As a result of the same injury odontoblasts and finer elements of the pulp were damaged to such an extent that they succumbed and a rapid deposition of coarse granular secondary dentine followed. The rarefying periodontitis eventually gave way to repair and so the calcified repair tissue was deposited at the apex.

What precipitated the onset of the " pink spot " is difficult to say. Perhaps it was a secondary minor injury, but there is no doubt that it commenced after the deposition of the secondary dentine as the latter itself has been resorbed and replaced in parts by the osseous repair tissue which is an end-product of the lesion.

Secondary dentine has, however, been observed (Thoma, 1946) to have been deposited opposite a progressing lesion arising in the periodontal membrane, as an attempt to wall it off, but it was only locally confined to that area. In this case, the secondary dentine is distributed throughout the pulpal wall including the incisal aspect. It, therefore, could not have been formed as a protective mechanism but was rather a result of injury, as is

often seen in teeth which have previously been traumatised, and radiographs of which show an almost complete obliteration of the root canals. The thin layer of tubular secondary dentine found incisally must have been present before the injury took place and has nothing to do with the post-traumatic changes.

The question of a neoplastic growth or endodontoma can be ruled out by the fact that active growth had ceased. No osteoclasts were seen in any of the sections in spite of evidence that resorption of the dentine had taken place with their aid. This together with the fibrous, hyaline and fatty degeneration of the pulp and its comparatively scanty blood supply support the view that active growth had ceased. Repair, on the other hand, was actively in progress, but there was a complete absence of osteoblasts. Fish states that, in the pulp, osteoblasts are produced by a metaplastic change in the undifferentiated mesenchymal cells and proceed to lay down osseous repair tissue. This tissue resembles that seen in the case described. Yet, here, at the periphery of the osseous repair tissue instead of osteoblasts, are collagen fibres about to be incorporated in the tissue, become calcified, and give it its laminar structure. The embedded lacunæ are probably due to stray cells, e.g. fibroblasts having been trapped in the process.

Conclusion

The case described is one of internal resorption as the result of traumatic injury.

Injury was also responsible for the deposition of coarse granular secondary dentine and resorption of the root apex which was followed by repair. These are considered separate lesions and are not allied to the main lesion of internal resorption.

Acknowledgment

I am grateful to Professor E. K. Tratman, *O.B.E.*, F.D.S. R.C.S., F.S.A., for his constructive criticism of this paper and to Mr. K. K. Chee who took the photographs and photomicrographs.

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BILATERALLY IMPACTED SUPERNUMERARY TEETH IN THE MAXILLA

By RICHARD SPITZER, D.M.D.

The patient, a man aged 49, attended for a routine dental examination. He had had all his maxillary teeth removed many years ago and he was wearing a denture which only recently started to cause him discomfort. He complained, furthermore, of stuffiness in the right nostril. The history revealed no findings of significance.

Clinical Findings.—The clinical examination showed an edentulous maxilla covered with normal mucous membrane. The alveolar ridge was atrophic, but no gross signs of irritation could be detected. Slight bulging of the palatal plate on both sides of the anterior palatal canal was noted upon palpation, without signs of fluctuation.

Radiographic Findings.—The radiological examination shows two completely embedded supernumerary teeth in an inverted position. The right tooth is placed high in the maxilla in a vertical position, its crown lying either inside or close to the

Fig. 1.

Fig. 2.—Photograph of teeth.

nasal cavity. The left tooth lies horizontally, its apex in close proximity to the median suture and its crown pointing to the alveolar process. The occlusal film shows in addition an opacity of the right antral floor (fig. 1).

Therapy.—Both teeth were removed under general anæsthesia. Only the tooth on the left side could be delivered by the palatal approach. At this stage, the right tooth could not be found, though the whole of the anterior palatal region was exposed and the alveolus extensively removed in the right incisor and canine region. Finally, an attempt had to be made from the labial aspect and exposure of the tooth was accomplished after removal of the overlying cortical plate (fig. 2). Recovery was uneventful.

AN ANCIENT EGYPTIAN SKULL AND A MANDIBLE SHOWING CYSTS

By N. SALAMA, L.D.S.Eng., and AZIZ HILMY, L.D.S.Eng.

Dental School, Cairo

The two specimens of special dental interest described below were discovered during an examination of a collection of skulls excavated at Sakara. These all belonged to the period covered by the reign of King Unas of 5th Dynasty, circa 2800 B.C.

(1) *Skull* of an adult showing a large dental cyst in relation to the upper left lateral, canine and first premolar. The outer alveolar plate is intact but the bone of the palate in this region is completely absorbed and shows a well-defined cystic cavity. The teeth in relation to the cyst are missing but the sockets are present, the teeth having been lost post mortem. The cystic cavity has expanded nearly up to the mid-line of the palate and has encroached upon the mesial aspect of the root of upper left second premolar The remaining teeth of the maxilla show severe and marked attrition with exposures of the pulps of $\overline{53}|\overline{56}$. There is another area of bone destruction in relation to the missing $\overline{4}|$ suggesting that there was a chronic abscess in relation to it which encroached on the bone around the root of $\overline{5}|$ which is quite bare of bone (*see* fig. 1).

(2) *An Ancient Egyptian Mandible.*—The left side is edentulous and shows a very large multilocular cyst with expansion of both inner and outer plates of bone. The cystic expansion has also involved, in addition to the left body, the ascending ramus including the coronoid process (fig. 2). The inferior border of the left body shows heavy bony deposition with an indentation of the internal pterygoid muscle which left an impression around which the tumour was expanding (fig. 3). On the right side $\overline{543}|$ are present, very much worn.

Fig. 1.—Photograph of an ancient Egyptian skull showing palatal expansion of a dental cyst with wires passing through the sockets of $\overline{|234}$ and reaching the cystic cavity.

Fig. 2.—Photograph of an ancient Egyptian mandible showing a large multilocular cyst of the left body and ascending ramus.

FIG. 3.—Photograph of an ancient Egyptian mandible showing heavy bony deposition at its inferior border on the left side around the multilocular cystic expansion.

Radiograph showed multiple cystic cavities separated by bony septa with a fracture in the mid-line.

EVERYDAY PROCEDURES IN DENTISTRY

GINGIVECTOMY

BY P. A. TROTTER, B.D.S.BIRM., H.D.D.EDIN., L.D.S.ENG.,

Senior Lecturer, King's College Hospital Dental School (University of London)

GINGIVECTOMY is the term used for the surgical removal of the diseased and detached gingivæ found in periodontal disease. The extent of the operation varies from the removal of a single interdental papilla to the eradication of periodontal pockets throughout the whole mouth. Gingivectomy is only part of the treatment scheme and other aspects such as oral prophylaxis, instruction in oral hygiene, fillings, need of partial prostheses, systemic disturbances, etc., should be attended to. The operation is radical in nature and therein lies its chief advantage. It is indicated where there are false pockets as in hyperplasia of the gingivæ ; where there are true pockets exceeding approximately 2 – 3 mm. in depth ; or where the gingival contours are irregular as after an acute attack of ulcerative gingivitis (Vincent's infection of the gums, fuso-spirochætal gingivitis).

There are various techniques employed in gingivectomy which in the hands of the skilled produce excellent results. It is not the intention to complicate this practical paper with alternative methods, but to demonstrate pictorially a system of surgical gingivectomy by scalpel. That by short-wave electrothermy will be described in a subsequent paper. It is hoped that more knowledge may be obtained from the study of the actual photographs of an operation than by reading a long description.

PRE-OPERATIVE TREATMENT

After a clinical, radiographic and, if necessary, laboratory examination, the mouth must be rendered clean prior to planning the final treatment. Many cases of apparent true pocketing are inflammatory enlargements of the gingivæ causing false pockets. These frequently resolve after a preliminary scaling, polishing and the institution of efficient oral hygiene. Furthermore, as it is imperative to obtain the patient's co-operation in periodontal surgery, the degree of this may often be assessed in the pre-operative period. The removal of subgingival calculus is easier after gingivectomy because of the improved access, but the advantages of a pre-operative scaling are considerable in many cases.

TECHNIQUE

BY SCALPEL (figs. 1–18).

Notes on Technique.

The method of determining the area requiring gingivectomy after pre-operative prophylaxis is shown in figs. 6, 7, 8.

Division of the Mouth into Areas :

(*a*) *Full Mouth.*

1st visit. Operate $\overline{3|7}$.

2nd visit (7 days later). Operate $\underline{3|7}$. Remove packs from $\overline{3|7}$ and institute post-operative measures.

3rd visit (7 days later). Remove packs $\underline{3|7}$ and commence post-operative treatment.

4th visit (14 days later). Operate (1) $\frac{73|}{73|}$ or (2) $\underline{73|}$.

5th visit (7 days later). Remove packs (1) $\underline{\frac{73|}{73|}}$ and commence post-operative treatment, or

(2) Operate $73|$. Remove packs $\underline{73|}$ and commence post-operative treatment.

6th visit (7 days later). Check post-operative treatment and commence post-operative prophylaxis.

7th visit (7 days later). Final prophylaxis.

(*b*) *Partial Mouth.*

This depends on the areas requiring attention, consideration being given to the patient's convenience.

Anæsthesia.

(*a*) Owing to the hæmorrhage and duration of the operation local anæsthesia is necessary, and these

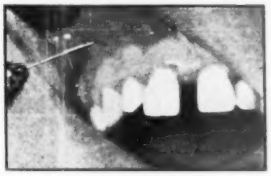


FIG. 1.—After prophylaxis and prior to gingivectomy with scalpel on $\underline{3}|\underline{3}$ region. Anæsthesia—Local infiltration labially. 1st injection. (Note needle inserted parallel to gingival margin.)

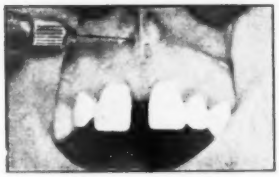


FIG. 2.—Anæsthesia (*cont.*). 2nd injection. (Note—needle inserted into already anæsthetised field and again parallel to gingival margin.)

FIG. 3.—Anæsthesia (*cont.*). 3rd injection—left and right naso-palatine nerves blocked at anterior palatine foramen.

FIG. 4.—Anæsthesia (*cont.*). 4th injection—infiltration palatally opposite $\underline{3}|$ to anæsthetise anastomosing branches of right anterior palatine nerve. 5th injection, corresponding injection on left side opposite $|\underline{3}$.

FIG. 5.—Anæsthesia (*cont.*). 6th and subsequent injections into the base of the interdental papillæ. (Note positive pressure is exerted on plunger on withdrawal of syringe and needle rapidly passed through bunsen flame between each injection. These precautions are taken to eliminate possibility of spread of infection.)

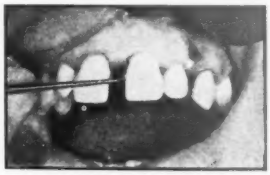


FIG. 6.—Measuring pocket depth using graduated right angle probe. Probe inserted into pocket—depth noted.

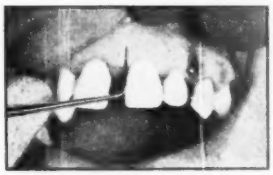


FIG. 7.—Probe placed labially to pocket to correspond with pocket depth.

FIG. 8.—Probe point inserted into gingivæ to mark pocket depth. (Similar procedure carried out on palatal aspect of area.)

FIG. 9.—Labial incision (note blade inserted 1–2 mm. rootwards of depth of pocket mark, and directed crownwards to obtain a bevelled incision).

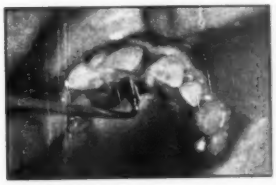


FIG. 10.—Palatal incision with acute angled blade showing the same principles of bevelled incision.

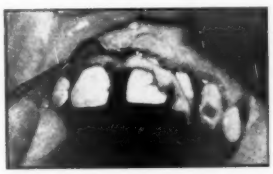


FIG. 11.—Tissue removed labially and palatally with Ash B scaler. (Note bevelled incision.)

FIG. 12.—Contouring the wound edge with side of blade.

FIG. 13.—Removal of remaining granulation tissue by an Ash B scaler. (Note—gentle atomisation aids vision.)

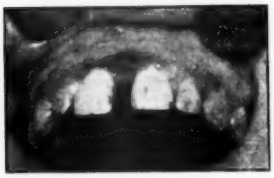


FIG. 14.—Zinc chloride (8 per cent) on cotton-wool inserted interdentally. Left *in situ* for 4 mins.

FIG. 15.—The area ready for packing.

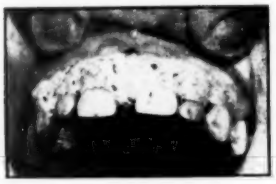


FIG. 16.—Packs *in situ*.

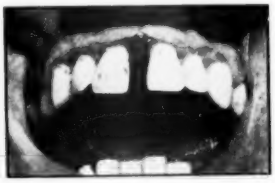


FIG. 17.—Immediately after removal of packs 7 days after operation.

FIG. 18.—28 days after operation.

factors govern the amount of anæsthetic and type of injection used (figs. 1–5). In this operation the removal of tissue containing the anæsthetic solution takes place. Increased vaso-constriction aids visibility during operative procedures, therefore submucous infiltration and interdental papillary injections are recommended.

(*b*) If desired the operation of gingivectomy may be performed under general anæsthesia, but again due to the hæmorrhage it is advisable to inject the area with a local anæsthetic.

Instruments Required.—(*a*) Hypodermic syringe and needle. (*b*) Mirror. (*c*) Right-angled probe, graduated in mm. if preferred, or (*d*) Specially designed pocket measuring tweezers. (*e*) Fine long-bladed tweezers. (*f*) Ash B scaler or Ash 82 scaler. (*g*) Surgical knives (Fish, Moynihan-Lewis or Trotter).

Materials Required.—(*a*) Surface anæsthetic solution. (*b*) Local anæsthetic solution. (*c*) Alcohol. (*d*) Zinc chloride 8 per cent solution. (*e*) Post-operative pack. (*f*) Swabs and cotton-wool.

Sharpening the Instruments.—The gingivectomy instruments should be carefully sharpened, Fish knives on an Arkansas stone, Ash scalers by means of a cylindrical stone mounted on the engine. The Moynihan-Lewis and Trotter knives employ replaceable blades, either a new blade or an old one which has been sharpened on a circular stone fitted to the lathe may be employed. The steel of these particular blades is not ideal for the purpose and soon loses its edge.

The Incision.

(*a*) The incision should be "clean" to ensure and facilitate the removal of a continuous strip of gingiva without leaving attached partially severed tags of gum tissue (figs 11, 12, 13).

(*b*) The post-operative contour of the gingiva should be bevelled rootwards buccally and lingually. The specially designed knives aid this by enabling the blade to be presented in a correct direction at the tissue surface (figs. 9, 10, 19).

(*c*) The labial and/or buccal and lingual and/or palatal incisions should both be made before tissue removal is attempted.

Zinc Chloride 8 per cent Packs.

These are used as a hæmostatic, obtundent and

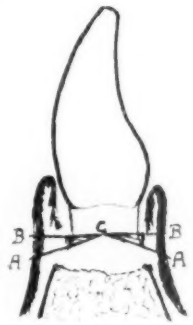


FIG. 19.—A. Correct incision. B. Incorrect incision. C. Base of pocket.

antiseptic. They facilitate packing by the reduction of blood seepage (fig. 14).

Packing.

Wonderpak is recommended.

Formula.—Powder : Zinc oxide 36·9 grm., Resin powder 46·5 grm., Tannic acid 7·4 grm., Aluminium silicate 3·3 grm., Asbestos fibre[1] 5·9 grm., Carmine 0·2 grm.

Liquid : Thymol 2 parts, Eugenol 98 parts (fig. 20).

Various packs, however, may be employed :

(*a*) Zinc oxide, oil of cloves on wool.

(*b*) Zinc oxide, oil of cloves on strips of gauze.

(*c*) S.S. White Impression Paste.

(*d*) Various formulæ of zinc oxide mixtures.

(*e*) Waxes.

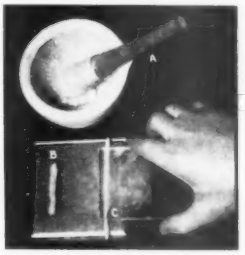


FIG. 20.—*Preparation of Packs.*—A. Powder and liquid mixed in a pestle and mortar to the consistency of stiff putty. B. As removed from pestle and mortar. C. Rolled between two pieces of glass to desired dimension.

FIG. 21.—*Application of Packs.*—1. Small pledget of pack placed interdentally. 2. Palatal and labial roll of pack being pressed into place with a wet napkin.

The object in packing is to protect the cut surfaces of the gingiva, eliminate post-operative pain, control hæmorrhage, prevent excessive granulations and infection, and to act as a temporary post-operative splint (figs. 15, 16, 21).

INSTRUCTIONS TO THE PATIENT

(*a*) *Immediate Post-operative.*

(1) Care should be exercised for the first few hours after operation not to brush the packs, masticate hard foods, or disturb them in any way.

(2) After this period they may then be lightly brushed or preferably swabbed with a solution of sodium bicarbonate. Particular attention should be paid to the pack margins.

(3) The patient should report immediately if—(*a*) the packs become partially or wholly detached ; (*b*) there is pain after initial pain of operation has passed—this is usually not severe and may be controlled by sedatives ; (*c*) there is excessive hæmorrhage.

(4) The patient should report in seven days for the removal of the pack (fig. 17).

(*b*) *Instructions after Removal of the Packs.*

The patient should be told (1) to use a mouthwash vigorously, using the cheeks, lips and tongue to force the fluid interdentally.

(2) To brush the area, gently at first, with a badger hair or very soft nylon mouthbrush.

(3) To commence the use of sticks interdentally (fig. 22).

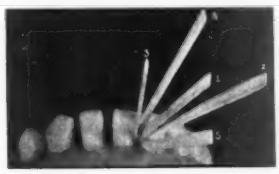


FIG. 22.—*Position of Sticks.*—1. Central interdental insertion, to and fro movement. 2 and 3. Lateral deviations, to and fro movement continued. 4 and 5. Vertical deviations, to and fro movement continued.

(4) After fourteen days to substitute a medium bristle mouthbrush for the softer brush.

The home treatment should be stressed and checked periodically, and the patients informed that it should be carried out assiduously for the remainder of their lives or whilst the teeth remain. The length of this latter period will depend on many things, but mainly upon the carrying out of efficient oral hygiene.

[1] Asbestos fibre (woolly) may be obtained from Hopkin & Williams, 16, St. Cross Street, E.C.1.

DEMONSTRATION AT ANNUAL MEETING

A DEVICE FOR TAKING SECTIONAL IMPRESSIONS IN ANTERIOR RESTORATIONS

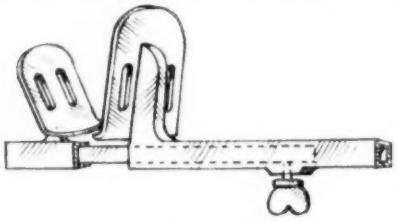
BY H. S. M. CRABB, B.D.S.LOND.
Guy's Hospital Dental School

IN the indirect method of making Class IV inlays, using sectional impressions in composition, it is required that the parts of the impression shall be positioned correctly when assembled.

The device described is simply a modification of a basic type of impression retainer, incorporating a

locking screw so as to give stability and rigidity to the assembled sections of the impression, with consequent ease of handling.

The device consists of a lingual and a labial part, each part carrying a vertical slotted plate to retain the impression material. The plate for use lingually is mounted on a brass rod, which slides into brass tubing on which the labial plate is mounted (*see* diagram). To the underside of the tubing is soldered



a locking screw which, when tightened, holds the two sections firmly together. The vertical plates are flanged at the base, to allow excess impression material to be trimmed off easily below the flange, ensuring that the opposing section can be pushed into position.

The vertical plates are made of Victoria metal, the brass rod and tubing are 3 mm. square in section, and the locking screw is taken from a splint-locking plate, and to this is soldered a small butterfly of Victoria metal.

In taking the sectional impression, the lingual side is taken first, excess composition being trimmed off with a warm wax carver to allow for withdrawal lingually, whilst retaining the impression of the whole of the intended gold-bearing area in that section. After chilling, the section is withdrawn and then replaced and inspected for any distortion. If satisfactory, the exposed surface is lightly lubricated, and the labial tray with composition is pushed into position, pressure being exerted on the vertical flanges lingually and labially with finger and thumb. After chilling, the sections are removed, reassembled and the locking screw is tightened. A rigid mould, easily handled, is obtained in which a model may be made in some model cement or amalgam. Sufficient of the surface of the adjoining tooth is incorporated in the impression to register the contact surface.

If desired, the model can be mounted in plaster, keyed and set in a further plaster base, and then sawn through close to the cervical margin without damaging the working surface. This then gives two halves which can be removed and replaced on a fixed base, so giving ease of working in carving the wax inlay pattern at the cervical margin of the model.

The device is also of use in taking a quick impression of anterior teeth in providing a model for the construction of a temporary acrylic crown, prior to jacket crown preparation.

ACKNOWLEDGMENTS

I wish to thank Mr. L. G. Wells, who, with the permission of Mr. A. Baker, Senior Technician, Guy's Hospital Dental School, constructed the device, and the Department of Medical Illustration, Guy's Hospital, for the diagram illustrating the device.

Practical Note

A QUICKLY MADE ACRYLIC JACKET CROWN

By LINDO S. LEVIEN, L.D.S. ENG.

I DO not favour plastic jacket crowns, but they have a place in present-day practice, and by using the method outlined below, a reasonably good jacket crown can be made in one visit of about one and a quarter to one and a half hours.

Procedure : Trim the tooth in the usual way, under local anæsthesia if the pulp is alive ; if the pulp is dead, inject a small amount of local anæsthetic round the gingival margin. Choose a copper ring which is not too tight and fit over the cervix : fill this with ordinary Kerr's composition and take an impression of the tooth. Cool this to harden it, take a compo impression in a small tray, remove, dry with wool and warm air. Mix some plastic dentine material (any colour will do), and pack it into the impression—packing tightly but filling only the sides of the adjoining teeth and leaving an excess amount to form a root which can be held in the fingers. Place this in warm water, 70° C., and allow it to harden. Remove the ring and compo with hot water, and you have a perfect impression of the tooth in a matter of minutes. Choose a plastic tooth of correct colour and width and hollow it out with a large rose-head bur, and finally, using vermilion paint, let it down on the model until you obtain a good fit—about 15 minutes' work. Test the bite and general appearance in the mouth and, if all is correct, proceed to fit. If the pulp is alive, the exposed dentine must be protected. Thorough application of a solution of thymol in spirit seems to serve this purpose. After drying the tooth with warm air, put a mix of the desired colour of plastic material into the crown, push the jacket on under good pressure, and hold in place with a pad of cotton wool dipped into hot water. Roughening or grooving of the tooth slightly ensures the stability of the crown. Clear any excess of plastic off at the margins before it is too hard, and, after it is well set, take a pointed diamond drill and run round the edges. By this means, a really perfect seat is obtained, and the ready-made plastic tooth does not stretch on the gingival margins as

the ordinary plastic jacket does. So far, I have not had the dark discoloration at the edges. Only a very small amount of freshly mixed plastic is used, and it does not appear to cause irritation of the pulp.

The same process can be used in making a post-crown. The root is trimmed in the usual way and a pin fitted and cemented in. The lower part of the pin is roughened and grooved. The plastic tooth is ground out and fitted on to the root over the pin and fixed on with plastic. This makes a very secure crown, and it also can be completed in one visit, a fact which will be appreciated by dental surgeons who are working against time.

Orthodontic Notes

Extraoral Anchorage, Its Indications, Use and Application.

In the last decade extraoral anchorage has become more widely used. The headgear eliminates the danger of disturbing the anchorage as is often observed when Class II elastics are used. In the mixed dentition there is no danger of extruding the upper anterior teeth. When the head cap is used, the whole upper arch appears to move distally, creating a much improved facial harmony and a stable end result as far as molar relationship is concerned. In the deciduous and mixed dentitions the second deciduous molars are used for anchorage ; the wedging of these teeth against the permanent first molars is most desirable as the axial position of the latter is not disturbed if the pressure is not excessive, and there is no danger of causing resorption of the permanent molars. Frequently incomplete root formation contraindicates direct force on the first molars at an early age. A unilateral force from extraoral anchorage is desirable in treating cases in which an upper deciduous second molar has been lost prematurely. When using the head cap in the mixed dentition eruption of the upper second molars may be retarded but as a rule they do not become impacted. The average direction for the pull of elastics is parallel with the occlusal plane in the permanent dentition ; by elevating the pull slightly the roots move ahead of the crown, that is to say there is distal root movement. One case illustrated is of a child 4½ years, the ideal age for treatment with extraoral anchorage, for which the treatment time was nine months ; there was no lower appliance. There was extreme maxillary protrusion. The result has the appearance of being similar to that which would have been obtained had the lower arch been brought forward. Where there has been medial drift of one of the upper buccal segments this may be treated with a unilateral force from the mouthpiece and traction bar where reciprocal action from Class II elastics is not desired, as is particularly the case where there has also been medial drift of the buccal segments of the mandibular arch. In one case of this type extraoral anchorage was used on both arches. In patients 15 to 18 it may be necessary to supplement the head cap with Class II elastics during the day. In patients a little older another method is to remove the upper second molars where it may be decided from radiographs that the crowns of the third molars are well formed. This procedure eliminates the removal later of the third upper molars which may be impacted or cause relapse. The third molars invariably assume a favourable axial position when the upper second molars have been removed, and the contact between first and third molars seems to be good. Often this procedure makes the difference between failure and success in older patients. At least it is not as radical as the promiscuous removal of premolars. The only objection is that the third molars sometimes erupt before the first molars are moved distally as far as is desired The main arch wire may be made removable during the day. Horizontal tubes are soldered to this arch in the premolar region and into these fit the accessory arch or " mouthpiece " to which the traction bar is attached by a swivel joint. It may be necessary to stabilise the lower front teeth with a lingual arch when the inclined planes of the upper anterior teeth begin to ride the lower anterior teeth as the upper arch is moved back.—Closson, D. A. (1950) *Amer. J. Orthodont.*, **36**, 265.

Preparation of the Child's Mouth for Orthodontic Treatment

Bite-wing X-rays are essential for diagnosing cavities in deciduous teeth and first permanent molars, if the deciduous second molar is in place. A cavity may be prepared in these teeth large enough to provide direct access to the medial surface of the permanent first molar and an amalgam filling inserted. This will obviate the unnecessary loss of tooth structure if the cavity were converted to a large Class II one. Copper amalgam is often used in deciduous teeth because of its therapeutic effect. In anterior teeth a good shade of permanent cement may be used until orthodontic work is completed. A permanent cement is preferred because it protects the pulp better and with a sedative zinc oxide base under it the pulp will recede and develop normally. As regards preventive treatment, ammoniated silver nitrate used interproximally is an old stand-by for molars and premolars. The tooth is walled off with cotton rolls and dried and the silver solution applied into the pits and fissures and interproximally. After a minute or two the eugenol solution is applied to precipitate the silver. The solution turns black, the excess is blotted off and hot air applied to dry it on. It only clings to areas that are actually etched. It should not be applied to anterior teeth. Gottlieb impregnation solutions are used for the same purpose, sodium fluoride is popular. The 2 per cent solution is used on an average of four times, about a week apart. The teeth are cleaned, dried, a solution applied for at least five minutes and allowed to dry. This should be done by the orthodontist, who will then be sure that a good job has been done. The weakness of all solution treatments is that the solution does not always penetrate interproximally because of the failure of capillary attraction to carry it in or because the teeth have not been thoroughly dried. Individual susceptibility has much to do with the results. Since Kesel announced the advantages of ammoniated tooth powders there has been an increasing use of them by the public. The evidence recommends their use by children and they are certainly recommended for those who have appliances in their mouths.—Hogeboom, F. E. (1950) *Amer. J. Orthodont.*, **36**, 302.

BRITISH DENTAL JOURNAL
JANUARY 2, 1951

1951

A PERIOD of transition, such as we are now passing through, can never be a comfortable one in which to live. The past decade has witnessed such rapid changes in values, both social and economic, that the process of re-adjustment has inevitably lagged behind. The old order has gone but the new one is not yet firmly established, nor is it possible to discern how much of what was best in the old can be preserved and rejuvenated in that which is taking its place. There is challenge in such a situation. And posterity will measure men and institutions by the adequacy or otherwise of their responses to that challenge. The assumption by the State of the responsibility for providing dental treatment for the whole population has brought about so fundamental a change in the relationship between the profession and the public which it serves that it would be unreasonable to expect the new system to reach a state of equilibrium in any short space of time. The challenge to the profession is that it should exert its influence to the full to ensure that the services of its limited numbers should be used in the best interests of the nation as a whole. That they are not so being used at the present time is sufficiently obvious.

It is indeed a gratifying sign of the times that the public conscience has been aroused by the decline in the organised provision for regular dental inspection and treatment of school children which has followed on the introduction of the National Health Service. For, until that decline has been arrested and the lost ground regained, there is no hope of the resources of the profession being utilised to secure the greatest possible benefit to the community. It is idle, in this connection, to waste words or time in an endeavour to apportion the blame for this lamentable position. What is important is that all who have any responsibility in the matter should do everything that is possible to retrieve the mistakes which have been made, and to lay more solid foundations for future development. It might well be the case that this would entail some measure of recasting of the services available in the Health Service for adults, which would have the effect of curtailing those services to some degree. This might be politically difficult of accomplishment, but it would be justifiable if it were the only way to bring about an expansion of the services available for children and adolescents. Granted limited numbers, a deliberate choice must be made, since there can be little prospect of any considerable diminution in the demands made on dentists by the adult population. Neither is it possible to look forward to there being any effective increase in the number of dentists in the near future. There is, happily, the hope that the long-drawn-out deliberations of the Whitley Council on the salaries of dental officers in the employ of local authorities may result in such an improvement in those as will, at least, check the drift from those services. It would, however, be optimistic to hope for more than that. It would not be surprising if, following on the enactment of the Medical Act of 1950, the Government introduced a Bill to amend the Dentists Act so as to give effect to those recommendations of the Teviot Committee which they have already accepted. Any such Bill might confidently be expected to provide for the establishment of a Dental Council with powers, broadly, the same as those exercised by the General Medical Council in respect of the medical profession. This would give the profession complete control over its own Register and the discipline of its own members, and thus carry the process set in motion by the 1921 Act to its logical conclusion. In the event of such a Bill being introduced, it seems probable that, in view of the concern of Ministers with regard to the school dental service, it might contain proposals with regard to the training and employment of ancillary or auxillary workers, with a view to increasing the total of dental service available for the population generally and school children, in particular. It is unnecessary to say that if any such proposals are put forward by the Government, they will receive careful examination by the profession, with a view to the promotion of the best interests of the public and the profession alike.

The experiment in the training of dental hygienists, which is at present being carried on at the Eastman Dental Clinic, is an indication of one direction in which the Government

might be expected to favour the employment of ancillary workers. This is a subject on which opinion in the profession is by no means unanimous. Many men, whose opinions carry weight, have for some time thought we should do well to follow America, and recognise the need for such a class of workers within a narrowly defined field of activity. It, however, must also be borne in mind that there is a consensus of opinion, both in America and elsewhere, that the work of hygienists, although relieving dentists of some part of their work, by promoting a realisation of the importance of oral hygiene, actually leads to an increase in the demands made upon them in other directions, with the result that the employment of hygienists does nothing to reduce the overall demand on the limited numbers of the profession if, in fact, it does not increase it.

In all these discussions it is pertinent to remember that the Teviot Committee, starting from the assumption that the dental schools, with their existing accommodation, could accept a student entry of nearly 600 students a year, said:

"We regard it as essential that there should be an expanded building policy: and this must not only be accompanied by, it must also be anticipated by, an expanded staffing policy."

Thanks to the enlightened policy of the Dental Board and the University Grants Committee, this latter requirement has, to a large extent, been met. There is, however, no indication of any substantial progress having been made towards the extension of existing schools or the institution of new ones, whereas, on the other hand, there is evidence that potential entrants to the profession sometimes have experienced great difficulty in securing places. The proper answer to the problem of the shortage of dentists is to increase the capacity of the schools, bearing in mind that a student entry of 600 will do little more than maintain the number of dentists on the Register at or about its present figure.

NOTES AND COMMENTS

The Report on The Dental Trade

MEMBERS of the dental profession will naturally have a special interest in the Report on the Supply of Dental Goods[1] issued by the Monopolies and Restrictive Practices Commission. Dentists reading the criticisms made by the Commission on the methods adopted by the Association of Dental Manufacturers and Traders are not likely to be unmindful of the valuable services rendered by the trade to the profession. In particular they will recall with gratitude the strenuous efforts which were made during the last war to render this country more or less self supporting in respect of dental supplies. The main criticism of the Commission is directed against the regulations of the A.D.M.T. which prohibits members of the Association from supplying dental goods to non-members except at the full retail price. This leads to the result that dealers covering nine-tenths of the trade may not buy from a manufacturer who is not a member of the A.D.M.T. Breaches of these regulations render the offender liable to expulsion from the Association, and, thereby, to be prevented from either buying from or selling to its members. The Commission express the view that almost every practice which might be expected to operate against the public interest "rests fundamentally for its enforcement on exclusive dealing and collective boycott." They go on to recommend that these practices should be prohibited either by special *ad hoc* legislation or by general legislation applicable to industry and trade generally. In the section dealing with the views of users the Report says that the general level of dental goods is praised, but that representatives of the A.D.M.T. expressed the opinion that if their association was weakened the quality of goods available might be deteriorated. In this connection it was noted that there was marked unanimity of opinion that there was a need for a bureau of standards. The Commission in addition to examining the activities of the A.D.M.T. also investigated those of the Amalgamated Dental Group of Companies, the largest manufacturer, the largest retailer and the largest exporter of dental goods, supplying as it does nearly a half of those sold in the United Kingdom. The conclusion of the Commission that "the Group has used with moderation the great power which it has derived from its substantial hold on the market and the support afforded to it by the restrictive practices of the A.D.M.T," will, we think, be endorsed by the profession generally.

[1] Report on the Supply of Dental Goods. His Majesty's Stationery Office, price 3s. 6d. net.

"Earnings"

MEMBERS of the profession have had reason to complain that many newspapers have quoted figures of the gross receipts of dentists as if they were "earnings" or even, in some cases, "salaries." This point was raised recently in the House of Commons in respect of payments to chemists, when the Parliamentary Secretary to the Ministry of Health indicated that out of the average earnings per

pharmacy of £2,244 about £1,153 was paid in respect of the cost of drugs and containers, leaving £1,091 which included business overheads and wages. Asked whether it would not be better if in future the Ministry used the expression "gross receipts" instead of "earnings," Mr. Blenkinsop said he appreciated that there had been a misinterpretation of the figures submitted to the Committee on Public Accounts and he was grateful for the opportunity to rectify it. The difficulty in these matters is that it is often impossible to obtain the insertion of any correction of similar misleading figures or to obliterate the effect on the public mind of the original inaccurate presentation of the facts.

Sales of Dental Goods

THE Report on the Supply of Dental Goods contains some interesting figures. These show that the value of the goods sold retail in this country in 1948 was just over £3½ million and that this figure was increased by some 60 per cent in 1949, when retail sales amounted to just under £5,700,000. It appears, after making due allowance for practice outside the General Dental Service, that the cost of dental goods is approximately 10 per cent of the total gross turnover of dentists. Of the total volume of sales, teeth account for 26 per cent of the cost—porcelain teeth 11 per cent and acrylic teeth 15 per cent. The other principal items are precious metals, 10 per cent, equipment 22 per cent, consumable sundries 33 per cent, and hand instruments and other dental goods 9 per cent. A footnote to the report says that it has been estimated that between 20 and 25 per cent, by value, of all retail sales of teeth and consumables in the home market are sales to laboratories. It is also noted that there has been a considerable increase in the number of laboratories since the introduction of the National Health Service. The Commission were informed, for instance, that the number of independent laboratories in Cardiff had risen from 8 in 1948 to 30 in 1949.

J. H. Vincent. 1862–1950

WHAT more honourable tribute could be paid to the life of any man than that he saved thousands of lives? This is the record of the life of Jean Hyacinthe Vincent. He it was who prepared the new typhoid-paratyphoid vaccine for the troops in the first world war. Vincent was born in 1862 and died November 23, 1950, at the age of 87. A native of Bordeaux he was educated in Paris where he made his mark from his early years to late in life. Teacher and professor at the military hospital in the Val-de-Grâce he won many distinctions and honours among which were the Grand Cross of the Legion of Honour and the Honorary Fellowship of the Royal Society of Medicine, the highest honour the Society has to bestow. In the dental world he is best remembered by the *plaut-vincent bacterium* which he first associated with hospital gangrene and later with ulceromembranous stomatitis or Vincent's angina. A long life spent for the welfare of mankind.

Lindsay Portrait Fund

READERS of the Journal are reminded that the Fund which is being raised to present Dr. Lilian Lindsay with her portrait on the occasion of her eightieth birthday is still open. There has been a gratifying response to the appeal but it is felt that many other members of the Association, particularly those who have derived direct benefit from the use of the library, would wish to be associated with this tribute to the gracious lady whose devoted zeal has brought the library from its modest beginning to its present pre-eminent position among the dental libraries of the world. Subscriptions to the Fund should be addressed to Mr. W. Shearer, 62, Oxford Street, Wellingborough, Northants.

Fifty Years Ago

From the "Journal of the British Dental Association," January 15, 1901.

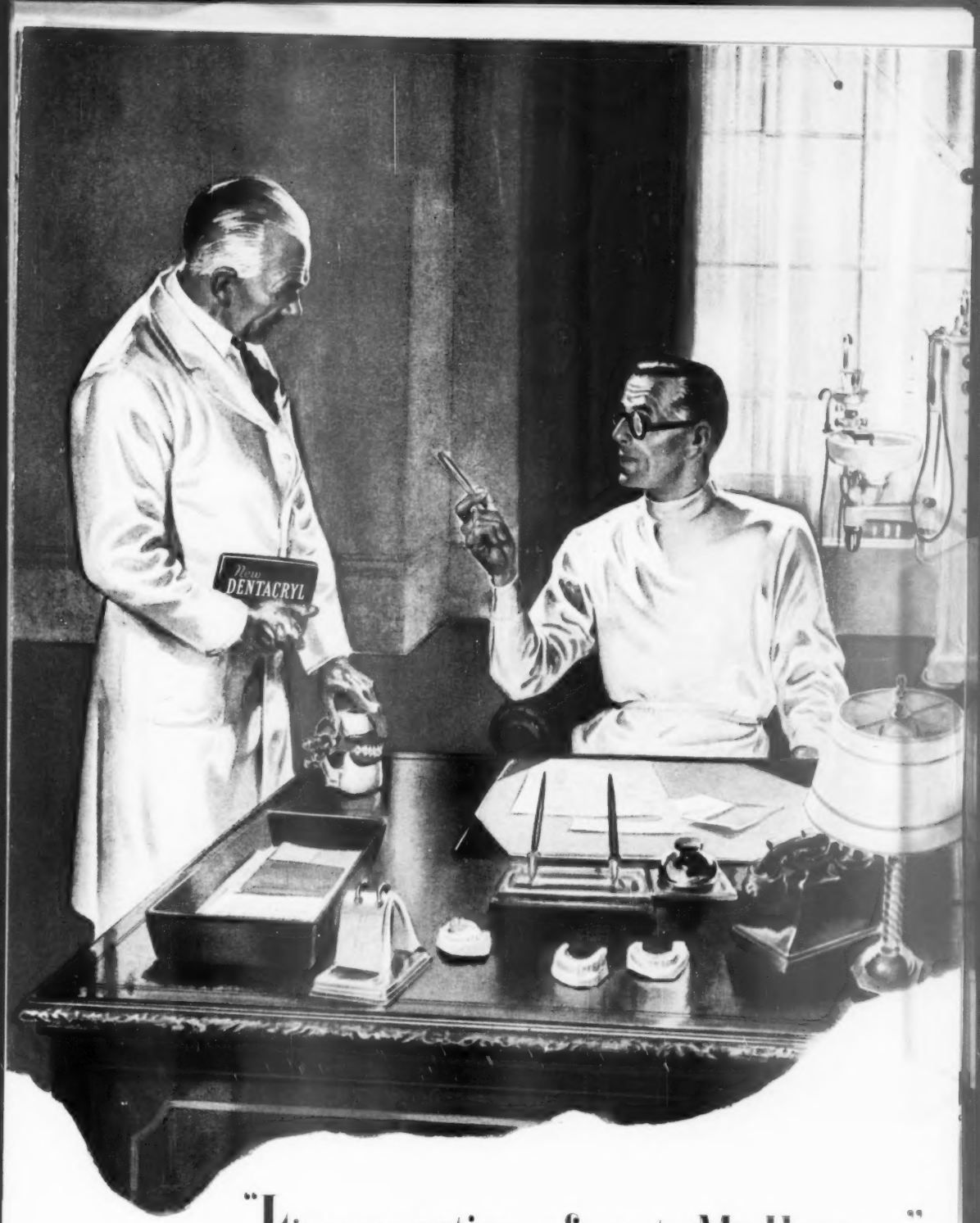
In the 2,707 registered as being in practice before July 22, 1878, were to be found a heterogeneous class of individuals. In my own experience I have known of men representing themselves to the public as dentists who were formerly engaged in the following occupations: architect, banker's clerk, bricklayer, black-pudding maker, carpenter, coach-painter, coachman, cotton-operative, collier, fishmonger, general dealer, grocer's assistant, herbalist, ironmonger, mechanic, milkman, station-master, stonemason, tobacconist, toll-bar keeper, and watchmaker. You will naturally ask, How on earth were these men enabled to get on the Dentists' Register? To which I reply: The Registrar of the General Medical Council had no option, but was bound to register all applications without question, which were accompanied by the requisite declarations.

LETTERS TO THE EDITOR

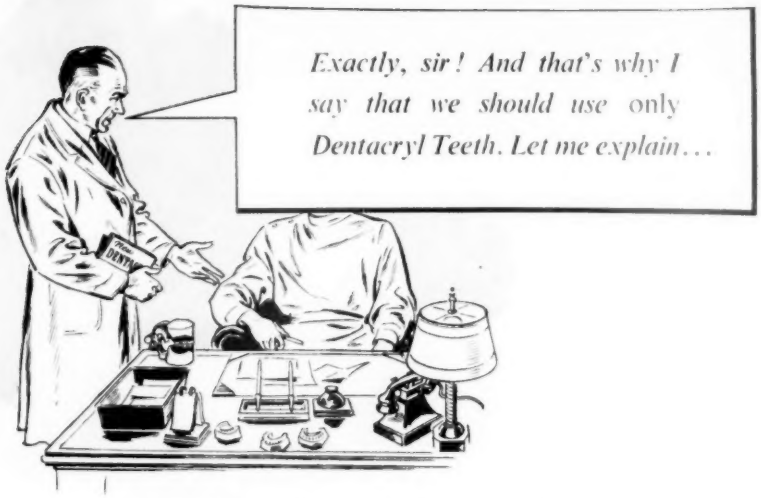
LINDSAY PORTRAIT FUND

SIR,—I came across recently a quaint remark of G. K. Chesterton. He said "To my way of thinking, a great librarian must have a clear head, a strong hand, and, above all, a great heart. . . . When I look into the future I am inclined to think that most of the men who will achieve this greatness will be women."

There are many who have this kind of regard for Lilian Lindsay. There are many more whose imagination has been stirred by the form and quality of her contributions to our thought and literature and whose spirits have been uplifted by precious conversations with her. It is these so many who owe her so much that wish to have a part in the testimony of the portrait, but who hold back



"It's a question of cost, Mr Henry..."



BETTER STILL, LET *US* EXPLAIN

As you know, New Dentacryl Teeth are far and away the best obtainable, and while the anteriors are somewhat more expensive than others, the posteriors are, in fact, cheaper. Thus, by using Dentacryl for the complete denture, you get the highest quality at the same price as if you had bought any inferior acrylic.

The cost of replacement directly due to the use of poor quality acrylic teeth can be disproportionately high, and represents the worst kind of false economy in dentistry.

When you use New Dentacryl you know that the risk of replacement is negligible and these fine teeth are, therefore, the cheapest in the end. Experienced technicians rely on the very best materials. That is why they prefer to make up dentures with . . .

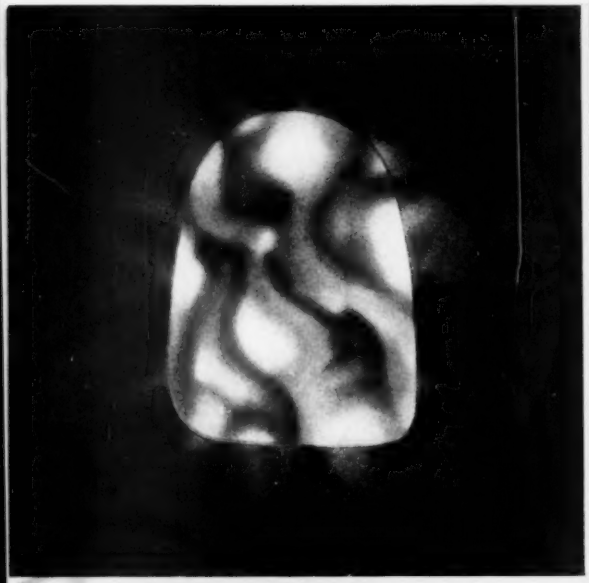
New DENTACRYL

ACRYLIC TEETH

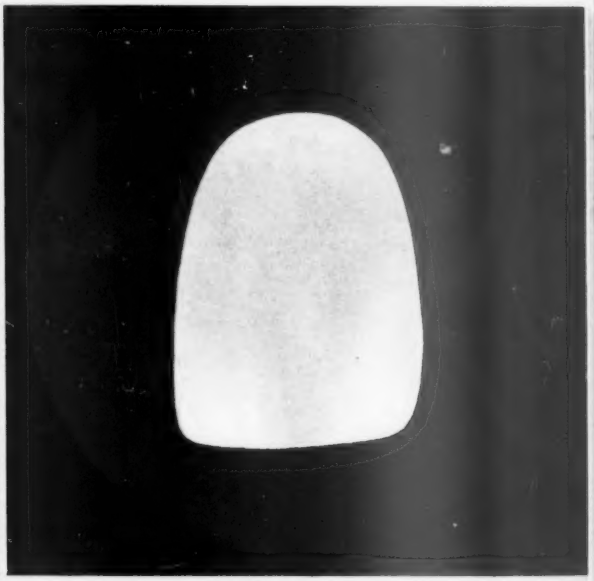
The part played by polarised light in the detection of stress has recently been the subject of a series of Dentacryl announcements in the professional journals. The full story can only be told, however, with the aid of *colour,* by which you are enabled to appreciate the difference in an ordinary tooth and a Dentacryl—as revealed by the Polarimeter.

Please turn over

DMC LTD



Enlarged view of an ordinary acrylic tooth as seen through polarimeter



A Dentacryl tooth appears translucent, proving absence of undesirable stress

TRUTH MADE EVIDENT

IN the photographs above you see, considerably magnified, the result of polarimeter examination of two apparently identical teeth. When stress—the cause of nearly all denture breakages—is present, as in ordinary acrylics, a tooth appears through the polarimeter lenses to be shot with all the colours of the spectrum. In the absence of stress the tooth appears perfectly translucent. This is but one of the tests to which these superb teeth are subjected.

THE DENTAL MANUFACTURING COMPANY LIMITED
BROCK HOUSE, 97, GREAT PORTLAND ST., LONDON, W.1

THE LARGEST MANUFACTURERS OF ACRYLIC TEETH IN THE WORLD

maybe whilst they guess at what is required. Would it not have been helpful if a small named sum had been solicited for the portrait fund? I was asked by the Annual Meeting of the Metropolitan Branch to write to you in some such terms. I will be bold enough to suggest that half a guinea be asked for from each and I have confidence that the required total sum will be forthcoming.

We have been greatly enriched by Dr. Lindsay and we are deeply grateful. Let us say so in considerable number and equally.

Yours faithfully,

23, *Maurice Walk*, FREDK. J. BALLARD.
Hampstead Garden Suburb,
*N.W.*11.

It is the wish of the Committee of the Fund that as many members as possible should join in the tribute to Dr. Lindsay and that no one should be deterred from doing so because of any diffidence he might feel about the amount of the contribution he feels able to make. Attractive as the idea of a fixed subscription undoubtedly is, the probable amount of the artist's fee is such that it would not be practicable, at this stage, to place an upper limit on individual donations to the Fund. It is, however, intended that no mention will be made in the list of subscribers of the amount contributed by each of them.—ED., *B.D.J.*

THE NEW ZEALAND SCHEME

From Sir Thomas A. Hunter

SIR,—I have recently read a report in the *Journal of the American Dental Association* (September 1950) on a study of dental public health services in New Zealand by Dr. Allen O. Gruebbel.

As the journal in question has a wide distribution, I would appreciate the opportunity of correcting two statements which Dr. Gruebbel has attributed to me.

He quotes me as saying (i) that the scope of the service of the school dental nurse " has gone far beyond what was originally proposed," and stated I had organised the Service in the first instance on the basis that school dental nurses would treat primary teeth only ; and (ii) that ever since the Service had been provided free of charge I had " found that children and parents are appreciating the dental care provided by the State to a lesser and lesser degree."

As it is evident that Dr. Gruebbel misunderstood what I wished to convey in my conversation with him, I want to make it clear that it was never my intention to limit the school dental nurses to the care of primary teeth only. When I became Chief Dental Officer in 1920 the Government was already committed to the treatment of school children, that is from six years of age upwards. Consequently it would have been absurd for me to have considered any plan that limited treatment to the primary teeth alone.

No doubt I discussed with Dr. Gruebbel my belief that dental care should be commenced at as early an age as possible, and emphasised my interest in the preventive aspect of the problem. It may be that Dr. Gruebbel interpreted this as meaning that I intended to confine the dental nurses attention to primary teeth but this was definitely not so.

In regard to the second point, I consider that the question of whether or not a public dental service should be provided free of cost to the individual is primarily a political one. Personally I am of the opinion that there are advantages in making at least a nominal charge for such services in order to retain interest, and no doubt I expressed the view that the provision of a free service might well lead to a lessening of interest. I am sorry if I gave Dr. Gruebbel the impression that this had actually occurred. On the contrary I was pleased to learn from one of the members of the United Kingdom Government's Mission, which was in New Zealand at the same time as Dr. Gruebbel (and for the same purpose), that he had questioned members of the public from all walks of life, selected at random in the main towns he visited, and that he had been greatly impressed by the interest in and appreciation of the dental service that their answers revealed.

In any case, as it is more than twenty years since I retired from the Service, I would not have presumed to comment on a matter of which I had no official knowledge.

I cannot help thinking that Dr. Gruebbel has overemphasised minor matters of this sort and that he has been over-anxious to belittle the achievements of a Service which is doing so much for the health of the children of this country.

Heretaunga, Yours faithfully,
New Zealand. THOMAS A. HUNTER.

OCCLUSION AND ARTICULATION

SIR,—Mr. Chapman in his letter (*Brit. dent. J.*, Nov. 21, 1950) states that since there is no difference between Sir Norman Bennett's definition of Occlusion and " Centric Occlusion " there is no need for the latter. In his Ætiology of Malocclusion, Sir Norman Bennett describes lateral abnormalities using the term " cross bite " and adds that there is usually lateral deviation. To me centric occlusion expresses all this in the fewest possible words.

" Rest position " and " freeway space " are not very satisfactory terms. " Physiological rest position " has been used and seems to be an improvement. An alternative to freeway space, to describe the space between the occlusal surfaces of the teeth when the mandible is in its physiological rest position, might be *occlusal space*.

When I first read Mr. Chapman's letter I had the same idea as that expressed by Mr. Hamish Thomson in the Journal of December 5, 1950, but I soon realised that a committee of men endeavouring to standardise nomenclature would do very little good. Such a body could only recommend the selected terms and definitions, the use of which would, as it does now, depend finally on the profession as a whole. It would only mean a lot of time and effort used to no purpose.

80, *Granville Road*, Yours faithfully,
Sevenoaks, Kent. H. E. WILSON.

PREVENTIVE TREATMENT

SIR,—In the December 5 issue of the *Brit. dent. J.* you quote Mr. Tomlinson, referring to the School Dental Services, as saying in the House that " his immediate aim was to get the Service back to its 1948 level at which it was able to offer *preventive* treatment on an effective level " (i.e. about 934 full-time officers). It is quite obvious from this remark that the words " preventive treatment " mean quite a different thing to him from what they do to the dental profession, and that what he ought to have said was " palliative treatment." If, on the

other hand, he did mean " preventive treatment " in the sense that most of us understand it, then the sooner he is disabused of this misconception the better.

Sutherland Dental School, Yours faithfully,
Northumberland Road, G. E. M. HALLETT.
Newcastle upon Tyne 1.

TRIGEMINAL NEURALGIA

SIR,—Professor Brodie Hughes states " dental treatment plays no part in the treatment of the neuralgia." He ends by advocating " anything which had a good reputation, provided the drug did no harm."

He is wrong—and his admission that no specific treatment is known should deter him from such a statement, especially when, in discussion, he states that " the problem of unerupted teeth and buried roots was one on which he was incompetent to speak."

From a neurosurgeon, especially one who has been impressed by the similarity of pain described by Dr. Weddell and his colleagues, this is a most modest statement. I, indeed, from my much less exalted academic position, feel most immodest in writing thus, especially with so few cases to report, but his negative view compels me to give my positive one ; as simply as possible, it is as follows :

(1) The severance of the dental nerve during extraction may not occur at the apex, but somewhere within the tooth, the mesial portion being retained in the socket (in the case of buried roots it is highly probable that the severance is distal to the distal end of the root).

(2) The neuralgia may be caused by the unprotected residual nerve, whether it be in the depth of a socket or outside the buried root (it is removed, unnoticed, in the latter case, the root having merely located it radiographically) and the root is thus deemed the cause, whereas the nervous tissue *outside the root*, which has been removed, unrecognised, is the culprit.

(3) The ultimate contraction of the healing socket may provide the conditions for the subsequent intense nerve-pain current ; alternatively, the unabsorbed nerve itself is for many reasons a potential pathological focus.

(4) The location and removal of this focus not only cures the neuralgia in these old cases, but removes the cause.

It seemed unaccountable that a comprehensive search of the literature failed to disclose any theories on this line. However, our present dependence on radiographs, the custom of handing such cases to the E.N.T. surgeon (who thereafter considers our territory exonerated) and such discouragements to our further investigations as that of Professor Hughes, may account for the omission.

Since June I have treated five cases, all typically afflicted for over two years, three having had one or more extra-dental operations. In each, after careful case histories had been studied, a thorough search disclosed the suspected focus, which was removed. In none has there been any recurrence of the pain since the date of the operation. In one case it was hoped to find the focus in the premolar region, but it was located in the area of the upper right third molar. A large flap (which heals as well as a small one), a sufficiently long anæsthesia, and great care near the antrum (in two cases with clear antra the antral lining was involved) are essentials.

My theories may be wrong. Nevertheless these cures, short-lived though they be as yet, coupled with the intense gratitude of those who have suffered this ghastly pain, make it of little importance that I should be premature in publishing these notes, before having sufficient data to announce a " cure." It is hardly necessary to warn those who have afflicted patients that it would be irresponsible and wrong to promise alleviation, which in any event will be confined to those cases where the case history suggests the above possible cause, until much more work has been done by much better brains than mine.

Confirmatory examination or evidence of the cases carried out to date is available. I should like your indulgence in allowing two short appreciations : The B.D.A. library is, I think, one of the finest bases for professional search that any profession could hope to enjoy. The first patient operated upon, one of the rarer bilateral cases, offered herself quite unreservedly as a guinea-pig for whatever experimenting I wished to carry out.

53, *Wimpole Street,* Yours faithfully,
*London W.*1. S. L. DRUMMOND-JACKSON.

A PERFECT DENTITION

SIR,—In reply to Mr. Gibbings recent letter regarding a " Perfect Dentition," if the existing perfect teeth were charted on the E.C.17 with dots as present, the clerk was certainly in error. It might have been kinder to the non-professional person to have titled the Chart in Part 8 as Caries Free, which I believe is customary, as is the case in the more common, though still very rare, patient titled " Artificially Sound."

It is a matter of regret to me that this sound citizen of the U.S.A. has returned home owing to a possibly over zealous attention to duty of one of our civil servants.

His dental treatment would have appeared to have been met out of our own sterling and was not dollar earnings.

The Gold Thorns, Yours faithfully,
Abergele Road, H. W. DUCHESNE.
Colwyn Bay.

A PLEA FOR PREVENTIVE DENTISTRY

SIR,—In view of the fact that the most important branch of dentistry, that consisting of the routine treatment of the teeth of children, appears to be receiving our attention to a lesser degree rather than to a greater, I am very anxious, through your columns, to make a plea for the dental health of the children of this country and an urgent appeal to every member of the profession.

In previous years we have remained content to treat the effect of dental decay rather than the cause. We have, in fact, concentrated our main effort upon the mass extraction of teeth and provision of dentures, upon intricate bridgework and large restorations, instead of attacking caries at its root by research into methods of prevention, the provision of a first class service for children, and a nation-wide health education programme.

Is it not time to revise our attitude to dentistry and to think of it more from the humanitarian point of view, i.e. in terms of preventing decay rather than in treating the ravages caused by it ?

I would like, therefore, urgently to appeal to each member of the profession to concentrate his or her

thought and energy primarily upon the practice of preventive and children's dentistry.

This unfortunately, but inevitably, would mean that less time could be spent upon adult dentistry, but it would be a temporary and entirely justifiable measure. Also in existing circumstances it would mean a slight lowering of income, but would not our loss in this respect be more than recompensed by the knowledge that we had attempted what after all is our moral obligation to the young people of to-day and the adults of to-morrow?

If this programme was conscientiously performed adult dentistry of the future would consist largely of a maintenance service which could be easily handled by the profession without any great increase in personnel, and the possible alternative of increasing our numbers by the introduction of semi-trained dental ancillaries would be rendered unnecessary once and for all.

The skilled treatment of the primary dentition and proper handling of children is without doubt the most important and most difficult work in dentistry, and I would personally regard it as a retrograde step and a great evil if this responsibility were passed on from the fully qualified dental surgeons to the semi-trained, and we would have to shoulder full responsibility for its outcome.

In conclusion I would like to put forward a few suggestions.

First. A greater emphasis should be laid upon moral and ethical standards by examining boards when interviewing prospective entrants to the dental schools, who should be encouraged to realise that dentistry should be a vocation as well as a profession.

Second. The introduction into all dental schools of a separate, self-contained department of children's dentistry working in close co-operation with a department of preventive dentistry.

Third. A nation-wide educative effort to impress upon parents and children the vital necessity for early care of the primary as well as the permanent dentition.

Lastly, that each and every member of the profession continually bear in mind the old saying: "Prevention is better than cure."

10, *The Drive*, *Hove, Sussex.*

Yours faithfully,
LEONARD G. MOREY.

A CASE OF CANCRUM ORIS

SIR,—In the case of cancrum oris by N. Salma and A. Hilmy (*Brit. dent. J.*, 1950: **88**, 302) resolution is attributed to penicillin. The following case which came within my experience shows that even in the absence of penicillin resolution is possible.

A child, aged about 8 years, sustained an abrasion of the lip on the thirty-first day of an attack of typhoid fever. Extensive sloughing of the tissues of the cheek in the region of the abrasion occurred. When seen the child was extremely ill with a fever swinging between 100–103°F. The left side of the face was much swollen and the tissues adjacent to the sloughing cheek were indurated and stony-hard. Smears from the gangrenous areas showed streptococcus pyogenes and fuso-spirillary (Vincents') organisms.

The child was immediately admitted to hospital and vigorous supportive treatment instituted. Glucose saline was administered intravenously and injections of Septicin and of Coramine were given at intervals. After clearing up the area with an atomiser the sloughed tissue was removed until healthy bleeding tissue was reached. The raw surface was then cauterised with pure phenol. Ichthyol in lanolin was applied to the skin of the surrounding area. The next morning the child's general condition was much improved and the infected area was clean. Injections of Septicin were continued and by the third day healing had begun. Eventually the wound healed completely.

These events took place in 1943 at which time penicillin was not available in India.

Rajkot, *India.*

Yours faithfully,
C. S. SHAH.

REVIEWS AND ABSTRACTS

DENTAL PROSTHETIC LABORATORY MANUAL. Second Edition. By Carl O. Boucher, D.D.S., F.A.C.D., F.A.D.P., Professor of Dentistry; Chairman, Prosthetic Division; Director, Dental Technology. The Ohio State University College of Dentistry, Columbus, Ohio. Henry Kimpton, 25, Bloomsbury Way, W.C.1. Pp. 410. Price 31s. 6d.

This is the second edition of this Manual and it does not appear to differ in any respect from the first. It is a book of instruction on dental mechanics for dental students and deals with the mechanical operations one by one. A list of instruments to be used in each is given and the procedure described. Following each section is a list of questions on the work covered, with spaces for the answers, and, alternating with the text, are blank pages for further comments by the student.

Frequent references are made to American textbooks that are not all recommended for standard use in our schools.

The Introduction tells us that the book was written to provide answers to the students' questions "What do I do now and what instruments do I use to do it?" The answers to these questions, however, differ from school to school. Useful, therefore, though the book would be in Ohio, the school of its origin, it is unlikely that any dental school in this country will be able to make great use of it.

ANATOMY FOR DENTAL STUDENTS. By M. Lucas Keene, D.Sc., M.B.B.S. and J. Whillis, M.D., M.S., F.R.C.S. Edward Arnold & Co. 1950. Pp. 243. Price 40s.

The authors of this volume are skilled anatomists with a wide experience of teaching their subject. They are, therefore, the more to be congratulated on producing a book in which a wise sense of proportion has prevented too great attention being given to topographical minutiæ and interesting, but confusing, detail. The problem of presenting the "attitude" of contemporary scientific anatomy (and physiology, too, for that matter) to dental students is a very real one. These students have much less time to devote to the subject than medical students and their active interest is held vocationally by only a restricted region of the body. Nevertheless, it is essential for the development of scientific dentistry that the dental student's interest in the wider aspects of anatomy should be fostered—or, at least, should not be dulled.

It is for this reason, in particular, that the reviewer feels this new textbook by Professors Lucas Keene and Whillis should be widely welcomed. It will be a useful text in itself for the intending B.D.S. or L.D.S. anatomy candidate and adequately covers the field of their examination requirements. The authors have achieved a sensible balance between the generalities required by all who study animal and human form and the particularities necessary for the application of anatomy to the problems of clinical dentistry. Most important of all, however, dental students will not be left, after reading this volume, with the feeling of indigestion and hopelessness that results too often from having to read a text not specifically designed for their requirements.

No book is perfect, certainly not in its first edition. It must be stated, therefore, that some of the figures are not up to the general high level of most of the illustrations and that there are several trivial slips, such as *termineaux* for *terminaux*, *central* hemisphere for *cerebral* hemisphere, *stomadeum* for *stomadaeum* (or, better, *stomatodaeum*!). The embryology is on the brief side but the reviewer is well aware of the difficulties of presenting this subject to dental students. Finally, though it hardly concerns the authors, the reviewer feels that forty shillings is an inflated price for a students' book which deserves, and will most probably acquire, wide usage. Among other points that could be made in this regard the volume contains many figures from plates already used by the publishers elsewhere.

BRITANNICA BOOK OF THE YEAR 1950. Edited by John Armitage. London: Encyclopædia Britannica Ltd. 1950. Pp. 718. Price £2 10s. 0d.

Modern editors have taken the advice of Confucius to make a friend of the fleeting present and by so doing to make indelible the record of contemporary events which will be of inestimable value to the future historian. The Encyclopædia Britannica has long been held as the prime authority on most subjects but such a vast work could only be republished at long intervals and therefore the publishers, imbued with the modern spirit, bring out a yearly publication of leading subjects and biographies written authoritatively on the present conditions obtaining therein. This method is a stimulating one which attracts attention to the progress or retrogression of affairs, political, social, scientific and sporting. A perusal of the present volume fascinates as would a panorama or a vast moving picture varying in colour and interest—a microcosmos expanding and contracting or condensing as conditions are said to behave in the greater sphere of the universe. This is a most attractive volume full of information and statistics, too valuable to be ignored by anyone who wishes to keep up to date, which should be in the possession of all libraries. It is well printed and bound and profusely illustrated by maps, photographs of places, persons and events. There is a mistake at page 259 which is duplicated – an anomaly in an otherwise excellent production.

The Gross Morphology and the Histological Relationship of the Lamellæ to the Organic Framework of the Enamel.—Some observers have regarded lamellæ as artifacts while others have regarded them as bands of uncalcified prisms or as other types of developmental defects. Soggnaes' study was made upon a large number of erupted and unerupted teeth of rats and rhesus monkeys and upon erupted human teeth. Paraffin sections of some were prepared after careful decalcification and others were microdissected with a binocular miscroscope after decalcification, thin spreads of various portions of the matrix being examined separately. Most anterior teeth of adult people showed one or more longitudinal cracks in the enamel which almost invariably proved to be the site of acid-resistant organic membranes. Occasionally such "lamellæ" were found orientated in various directions around ill-fitting silicate fillings. Lamellæ were present in mottled human teeth. Study of the animal material showed that lamellæ are as rare in unerupted teeth as they are frequent in erupted ones and that freedom from caries in animals cannot be attributed to any lesser frequency of lamellæ. An intimate connection was found to exist between lamellæ and the surface cuticle on the one hand and the prism sheaths on the other. As a rule the external parts of the lamellæ were thicker than the inner. Examination of paraffin sections showed that lamellæ do not represent uncalcified prisms but are situated between prisms and correspond fairly well to the combined prism sheaths and the interprismatic substance. Lamellæ do not run a straight course between prisms or follow any one prism or group of prisms, nor do they bear any constant relationship to the incremental pattern of the enamel but where Schreger's bands are marked the organic lamellæ are found to follow the alternating bands in the fashion of a corrugated ribbon. They usually do not reach the dentine. In human teeth they are apt to be found where functional stresses have caused discontinuity between the prisms.

It is concluded that failure of the lamellæ to follow the pattern of developmental structures and the failure to find lamellæ in unerupted teeth does not support the view that the lamellæ are of developmental origin. Soggnaes has previously pointed out that the difficulty of staining, fixation and decalcification of enamel may be due to the fact that the organic matrix is so petrified with calcific matter that it is virtually inaccessible to reagents. It is well known that surface membranes may be removed repeatedly from enamel surfaces after successive grindings. These membranes are probably the enamel matrix of the superficial layers of the enamel

which the fixative has beeen able to penetrate. In the same way fixatives might be expected to penetrate cracks in enamel and thus gain access to the adjacent organic matter. It may be that the so-called lamellæ are produced in this manner and are therefore simply cracks in the enamel. Alternatively the organic matter of lamellæ might be due to diffusion of organic matter into cracks either from the outside or from within. Saliva would seem to be one source of such organic matter and since calcified matter in the form of calculus is so commonly deposited around teeth it is perhaps feasible that mineral matter may infiltrate the organic matter in cracks and so produce a much needed repair of traumatic injuries to enamel.—SOGGNAES, R. F. (1950) *J. dent. Res.*, **29**, 260.

Preliminary Studies of the Caries Inhibiting Potential and Acute Toxicity of Sodium Monofluorophosphate.—The caries experience was studied of 60 hamsters which received a high carbohydrate caries-producing diet for 113 days. The animals were divided into three groups. Group 1 received distilled water, Group 2 distilled water to which 40 p.p.m. of fluorine was added in the form of sodium fluoride, and Group 3 received water containing 40 p.p.m. of fluorine in the form of sodium monofluorophosphate. This is a complex compound which, unlike most of the fluorine compounds which have been investigated for caries inhibition, does not yield fluorine ions in aqueous solution. Sodium monofluorophosphate was found to be about 7 or 8 times less toxic to rats than sodium fluoride. The caries experience of both groups of hamsters that received fluorine was much less than in the control group. Sodium monofluorophosphate and sodium fluoride were both about equally effective. Assuming that sodium monofluorophosphate is not appreciably hydrolyzed in the animal body, these findings appear to indicate that fluorine need not be in a free ionic form to inhibit caries in the hamster.—SHOURIE, K. L., HEIN, J. W., and HODGE, H. C. (1950) *J. dent. Res.*, **29**, 529.

The Failure of Ammonium Ions to Inhibit the Growth of Oral Lactobacilli.—Out of the claim of Kesel *et al.* that they found that ammonium ions in low concentration exert a toxic effect on oral lactobacilli *in vitro*, has arisen an active interest in dentifrices and chewing gum containing these ions. Kirchheimer and Douglas have studied this matter afresh and have been unable to confirm the findings of Kesel *et al.* They point out that from a knowledge of bacterial nutrition ammonium salts would not be expected to exert an inhibitory effect and in practical experiments they found that these salts in both high and low concentrations produce no appreciable effect on the growth of lactobacilli. Any effect dentifrices containing ammonium ions may be shown to have in reducing caries clinically will have to be explained on some basis other than inhibition of lactobacilli by ammonium ions.—W. F. KIRCHHEIMER and H. C. DOUGLAS (1950) *J. dent. Res.*, **29**, 320.

Bacterial Growth and Crystal Formation: A possible Factor in Calculus Formation.—The formation of crystals of ammonium magnesium phosphate was observed in the immediate vicinity of colonies of strains of oral actinomycetes grown on beef heart infusion blood agar. The addition of dextrose to the medium seemed to inhibit the formation of crystals. This may have been due to a lowering of pH by the fermentation of the sugar. Control experiments showed that crystal formation was not due to a surface tension phenomenon resulting from disturbance of the medium by stroking with the loop used for inoculation; nor was the phenomenon due to drying of the medium. Crystal formation occurred even in the presence of a mixed bacterial population, providing the reaction was alkaline as a result of decomposition of proteins contained in the medium. These findings are considered to offer support to Naeslund's theory of salivary calculus formation, that bacteria decompose proteins and produce an alkaline environment in which the calcium salts are deposited.—BARTELS H. A. (1950) *J. dent. Res.* **29**, 436.

The Biogenesis of Overbite.—The development of overbite was studied in serial models of 52 children. It appeared that a severe degree of overbite in the deciduous dentition was likely to be followed by a similar degree of overbite in the permanent dentition. The degree of overbite seemed to depend, as far as could be determined from models alone, upon the amount of forward mandibular growth. If forward growth of the mandible was slight the amount of overbite was increased. Incisal overbite seemed to depend more upon the labio-lingual relationship of the upper and lower incisors to each other rather than upon the amount of eruption of the permanent molars. It was noticed that the overbite depended to some extent upon the eruption sequence of the teeth. When in the lower arch the sequence was canine, first premolar, second premolar and in the upper arch first premolar, canine and second premolar, the best results were observed.—BAUME, L. J. (1950) *J. dent. Res.*, **29**, 440.

THE HEALTH SERVICE

LOCUM TENENS IN HOSPITALS

THE Medical Whitley Council (Committee "B") have agreed that Paragraph 7 of the Terms and Conditions of Service of Hospital Medical and Dental Staff (England and Wales) relating to fees for consultants acting as locum tenens, dated June 7, 1949, shall be amended to read as follows:

"7. Payment at the rate of 5 guineas per notional half-day shall be made to a consultant engaged by a Board as a locum during the temporary absence of a consultant or, exceptionally, of a senior hospital medical officer, when it is impossible to arrange for his work to be adequately performed by other members of the Board's staff within the terms of their contracts of service.

A locum engaged by a Board or Hospital Management Committee during the temporary absence in similar circumstances of a senior hospital medical officer (except as provided above), a senior hospital dental officer, or a general practitioner holding an appointment of the kind described in paragraph 10 (*b*), shall be paid at the rate of 3½ guineas per notional half-day."

Similar conditions apply to Scotland and the agreement comes into force forthwith.

MARRIAGE BAR FOR WOMEN OFFICERS

THE General Council, Whitley Council for the Health Services (Great Britain), have agreed to recommend

that no woman should be disqualified from obtaining employment in the National Health Service or be subject to dismissal from employment in the National Health Service simply by reason of marriage.

SUPERANNUATION. PRACTITIONERS OVER 60

A PENSION and a widow's pension are payable under the Health Service Superannuation Scheme only where the practitioner completes ten years' service before he retires or dies.

Practitioners who join the Health Service after the age of 60 cannot therefore hope to qualify for either of these two benefits even if their pensionable age is extended to 70 and they serve until they reach it.

The question is often asked whether in these circumstances there is any purpose in a practitioner who joined the Health Service between 60 and 65 applying for the extension of his pensionable age to 70. It is suggested that generally speaking it will be to his advantage to have his pensionable age extended in this way, for after completing five years' service he will become eligible for the following benefits :

(1) **Retiring Allowance.**—This is payable on retirement after five years' service. It will amount to 4½ per cent of the practitioner's total net remuneration during the whole of his time in the Health Service. In addition where this sum is less than the average net yearly remuneration during the preceding three years (as it usually will be) the Minister of Health has power to add to it at the request of the practitioner a further sum equal to the amount of the Death Gratuity described in (2) below.

(2) **Death Gratuity.**—This is payable on death after five years' service. It is a sum at least equal to the practitioner's average net yearly remuneration during the preceding three years, but any benefits already paid (for example in the shape of a retiring allowance) will be deducted from that sum.

The following example may help : Practitioner A joins the Health Service at the age of 62. He applies for, and is granted the extension of his pensionable age to 70. Provided he completes at least five years' service he may become eligible for the following benefits :

(1) **Retiring allowance.**—Assuming that he serves until 70 and earns a steady net annual income of £1,500 during his eight years in the service he will receive on retirement a lump sum of £540. To this, if the practitioner requests it, the Minister has power to add a sum of at least £1,500, making a total of £2,040.

During his service the practitioner will have paid £720 by way of contributions to the scheme.

(2) **Death gratuity.**—If he dies between the ages of 67 and 70 his representatives will be paid a lump sum of at least £1,500. If he dies after the age of 70, the death gratuity will be reduced by the amount of the retiring allowance he has already received.

If a practitioner does not apply for the extension of his pensionable age beyond 65, he will stop paying his 6 per cent contributions when he reaches that age, and when he retires from the Health Service he will receive back those contributions plus compound interest upon them. He will not be entitled to receive the 8 per cent contributions which his Local Executive Council will have paid during his service.

PUBLICITY FOR HOSPITAL BOARD MEETINGS

REPLYING to a question asked by Mr. Carmichael (Bridgeton) about the attendance of representatives of the Press at the Regional Hospital Boards in Scotland, the Secretary of State for Scotland, said that representatives of the Press regularly attended the meetings of the Regional Hospital Boards and the Boards were most grateful for the help and co-operation they received from the Press. The placing of minutes in the public libraries was a subject within the discretion of the Boards who took the view—which the Minister shared—that this was not the best way of securing publicity. Other means were being adopted and the Minister was encouraging the Boards to use them to the full.

DENTAL NEWS

MEDICAL OFFICERS' SALARIES

Industrial Court's Award

CONSIDERATION of the claims of dental officers employed by local authorities for new scales of salaries has been held up pending the decision of the Industrial Court on the corresponding claims of medical officers. The Court has now made an award on these and it is therefore hoped that rapid progress may now be made towards a settlement of dental officers' salary scales. The new scales for medical officers are :

Medical Officers.—A minimum scale of between £1,450 and £1,650 with four annual increments of £50 (population not exceeding 75,000) ; between £1,550 and £1,850 with five annual increments of £50 (population not exceeding 100,000) ; between £1,750 and £2,050 with five annual increments of £50 (population not exceeding 150,000) ; between £1,950 and £2,250 with two annual increments of £100 and one of £50 (population not exceeding 250,000) ; between £2,000 and £2,500 with two annual increments of £100 and one of £50 (population not exceeding 400,000) ; between £2,300 and £2,700 with three annual increments of £100 (population not exceeding 600,000). In cases where population is above 600,000, minimum scale with annual increments at discretion.

Assistant Medical Officers or Medical Officers in departments, £850 a year rising by annual increments of £50 to £1,150 ; Senior Medical Officers, £1,250 rising by annual increments of £50 to £1,650.

The award takes effect from October 1, 1950.

DURHAM COUNTY COUNCIL

ASKED by Mr. Boyd Carpenter, on December 14, whether he was in a position to make a statement as to the result of the discussions between the Government and the Durham County Council on the subject of the latter body's intention to make membership of a professional organisation or trade union a condition of employment, Mr. Morrison said the Minister of Health and Education discussed the question with a deputation from the council. It was not considered that any further statement was necessary at the present stage.

Pressed in a supplementary question for an assurance that any person who lost his job as a result of this decision would secure the effective protection of the Government, Mr. Morrison said he was satisfied that the county council intended to take no precipitate action to enforce their policy upon their employees, and added that he thought the House would be well advised to leave the matter there for the time being.

NATIONAL SERVICE FOR DENTISTS IN MEDICAL GRADES III & IV

THE British Dental Association has been notified by the Ministry of Health that, with effect from December 1,

registered dental practitioners who are placed in Grade III or Grade IV by National Service Medical Boards, provided that they are considered suitable for employment in the Armed Forces, are to be regarded as available for National Service in the same way as dentists in Grade I and Grade II.

It is not at present proposed that this should be applied to dentists who were placed in Grade III or Grade IV before December 1 and who may therefore have been officially informed that they were outside the field for call-up.

Dentists graded III or IV by National Service Medical Boards on or after December 1, 1950, cannot assume that they are unfit for National Service unless and until they are so notified.

A similar change in the recruitment arrangements for doctors has been approved by the Central Medical War Committee as necessary in view of the present shortage of medical officers in the Forces.

THE SCHOOL SERVICE

THE Swansea Child Welfare Sub-Committee have recommended the Education Committee to advertise for school dentists at salaries of £1,500 per anum. Supporting the recommendation, Councillor Pencock said they had the clinics, the apparatus and the nurses but were short of dentists. Some authorities had got over the difficulty by giving increased salaries. It was for the Ministry of Education to give them sanction to pay more to get dentists.

The Education authority for Moray and Nairn have arranged for two retired dentists to examine the teeth of school children at regular intervals and to issue instructions to the parents of children who are found to require treatment to have their children's teeth treated by private practitioners under the National Health Service. The scheme is reported to have the approval of the local dental committee.

IMPORT OF SCIENTIFIC FILMS COUPON SCHEME

THE United Kingdom is to take part in an international Film Coupon Scheme, organised by Unesco, which will enable soft currency countries to purchase educational, scientific and cultural films from hard currency areas.

Coupons will be marketed in this country by the British Film Institute, 164, Shaftesbury Avenue, London, W.C.2, who will also be the central body through whom all imports and exports under the scheme will be channelled.

In this way purchasers who have been unable to obtain educational, scientific and cultural films from hard currency countries will be enabled to do so.

Intending purchasers should first of all satisfy themselves that the particular film they want is educational, scientific or cultural, on which matter they may be given guidance by the British Film Institute. They must also make sure of the availability and price of the film. They should then apply to the Institute for the necessary import form which when completed should be returned to the Institute. It will then be the Institute's function to obtain the film, clear it through customs and hand it over to the purchaser. A similar Unesco scheme relating to books has been successfully operating for the past two years.

FEE FOR MEDICAL REGISTRATION

THE General Medical Council have given notice that from October 11, 1950, the fees payable for original registration in the Medical Register will be £11 11s. Fees for the registration of additional qualifications have not been increased.

THE REPORT ON DENTAL GOODS

Mr. H. WILSON, President of the Board of Trade, replying on December 14, in the House of Commons to Questions regarding the Monopolies Commissions report on dental goods, said he would like to thank the Commission for a very thorough and remarkable piece of work. The Report called for the prohibition of certain practices which had been under review. The action to be taken was a matter for the Minister of Health and they would have to consider whether to take action in this particular case or to await the general legislation which was also mentioned in the Report. In a statement, circulated in Hansard, Mr. Wilson said that, on the factional side of their investigation, the Commission reported that the conditions to which the Monopolies Act applies did prevail in the dental goods industry on two grounds. First, the Association of Dental Manufacturers and Traders of the United Kingdom was an association of persons who controlled more than one-third of the supply of dental goods and who so acted as to restrict competition. In fact, the association controlled about 90 per cent of the trade. Secondly, the group of companies headed by the Amalgamated Dental Company was a group of inter-connected bodies corporate within the meaning of the Act and controlled more than one-third of the supply of the goods.

Dealing with effect of these conditions on the public interest, Mr. Wilson's statement continues—as regards the Amalgamated Dental Company's group the Commission found that " the group has used with moderation the great power which it has derived from its substantial hold on the market." Nevertheless, the Commission thought that prices of certain lines in which the group had a substantial monopoly had been unduly high and recommended that the group should reduce them. The Commission also criticised certain restrictive agreements made by the group and recommended that these should be reconsidered. As regards the Association of Dental Manufacturers and Traders, the Commission took the view that the Association's use of exclusive dealing and the collective boycott as devices for enforcing resale price maintenance had had undesirable results in restricting entry into the industry, and for that reason, among others, were against the public interest. The Commission recommended that those practices should be prohibited in this industry. He added that two members of the Commission made a reservation about this last recommendation. They pointed out that, as was common knowledge, similar practices were carried on in other industries and that it was purely fortuitous that this industry should have been investigated first by the Commission. They suggested, therefore, that it would be wrong to enact *ad hoc* legislation against this industry, though they would not recommend that it should be exempt from any general legislation. Various other rules and regulations of the A.D.M.T. were criticised in the Report and the Commission recommended that the Association should review them.

He did not propose to say much about the implementation of the Commission's recommendations. The first essential was that all concerned should study the Report in detail and in particular, that the industry itself, towards whom several of the recommendations were directed, should consider, very carefully, how best to

respond to the Commissions findings. So far as it might become necessary to invoke the remedial sections of the Act, which could, of course, be applied to individual cases, the appropiate authority in this instance would be the Minister of Health.

A MISSIONARY DENTIST IN AFRICA

Mr. E. G. W. Bowerman, L.D.S.Eng., who before going to Northern Rhodesia as a missionary was in practice in Leicester, writing to a friend in England, says in a letter published in *The Crusaders Magazine* :

" In the last two weeks I have gone nearly 900 miles (into the Belgian Congo) over roads that would be considered mere tracks at home, and have visited six mission stations, treating missionaries and Africans. Packing everything in the car, dental kit, luggage, bedding, food, petrol and oil, we set off to a place called Kamina, due north of us and about 240 miles away. It is a little Belgian town, built to serve an air-field. There was actually a hotel here, a rarity in Central Africa, and in the lounge we discovered two missionaries who had come in to get hospital treatment. They told us, to our delight, that Don Gordon would be found at a place called Kabongo, 120 miles further along the road we were travelling. We arrived there about 11 a.m., and you can imagine what it felt like to greet one of the old East Leicester fellows in the middle of Africa. I intended going on after dinner, but it so happened that two car-loads of missionaries were passing through that day, and needed dental work, so out came the boxes and within thirty minutes we were hard at it. I even did some for Don. Next morning we bade them an unwilling farewell.

" I wish you could have seen me this afternoon in the dispensary. Sitting around were twenty or more patients, and in front a crowd of relatives and sightseers. Every move that I make is greeted with sighs and other noises, or with hoots of laughter if the victim pulls a face. Africans here have never had ' painless extractions ' before, and when news of this marvel got around they simply poured in for treatment."

Examination Results

University of Bristol.—*Final B.D.S.*—M. Bernstein, A. H. Chivers, Ruth A. Yearn. *Final L.D.S.*—G. D. Everard, H. T. Jones, D. A. Pearce, W. H. N. Scawin.

University of Manchester.—*Final B.D.S.*—G. Belfield, D. P. Cookson, J. I. Farquhar, W. Frankland, G. E. Harper, B. T. Posner. Satisfied the examiners at *L.D.S. Standard*.—A. G. Huddart, J. G. Wilson. *Final L.D.S.*—G. W. J. Copley, T. Dougherty, A. J. Farnworth, H. N. Farrell, J. Midgley, H. Read, A. Rosenstraugh, J. Smith.

The Services

THE ROYAL ARMY DENTAL CORPS

Alliances

H.M. the King has been graciously pleased to approve that the Royal Canadian Dental Corps, Royal Australian Army Dental Corps and the Royal New Zealand Dental Corps be allied to the Royal Army Dental Corps.

Obituary

Ernest Throne Clarkson, L.D.S.Eng., of Bartholomew Road, Kentish Town, London, died in hospital at Amersham on December 15, 1950. He qualified in 1905.

Eric Willoughby Lowe, F.D.S. R.C.S.Eng., L.D.S.Edin., of Hove, died on December 19, aged 60. He qualified in 1913 from the Edinburgh Dental School and was Honorary Dental Surgeon, Royal Sussex County Hospital. He had been a member of the B.D.A. since 1918.

Our Diary

Wednesday, January 3.

Central Counties Branch.—Luncheon Meeting, Midland Hotel, Birmingham, 1 p.m. Colour Films : " Bite Recording for the Edentulous Patient " (commentary by Professor J. Osborne) ; " Apicectomy " (commentary by J. L. Hardwick).

Monday, January 8.

The British Society for the Study of Orthodontics.—Manson House, 26, Portland Place, W.1, 7.30 p.m. President's Address : "An Analysis of Serial Models Between Three and Eight Years of Age," Miss L. M. Clinch.

Metropolitan Branch — Finchley Sub-Section. — Annual Dinner, Salisbury Hotel, Barnet, 6.30 p.m.

Epsom, Sutton and District Section.—Business Meeting, Tattenham Corner Hotel, Epsom Downs, 7 for 7.30 p.m.

Tuesday, January 9.

Bristol and District Section.—Dental Hospital, Bristol, 7.30 p.m. " Legal and Ethical Aspects of Dental Practice," Dr. A. R. French.

Sheffield and District Section.—Grand Hotel, Sheffield, 7.45 p.m. " The Use of Zelex in Multiple Inlays and Bridges," E. L. Hampson.

Wednesday, January 10.

East Lancashire and East Cheshire Branch.—Midland Hotel, Manchester, 2.30 p.m. " The Modern Trend in American Prosthetics," Professor H. B. Fenn.

Thursday, January 11.

Brighton and District Section.—The Dudley Hotel, Lansdowne Place, Hove, 8 p.m. " The Treatment of the Fractured Incisor," A. Maxwell Horsnell.

Northern Counties Branch.—Sutherland Dental School, Northumberland Road, Newcastle-on-Tyne. Council, 5 p.m. Branch meeting, 6 p.m. " Current Affairs," A. H. Condry.

West Lancashire, West Cheshire and North Wales Branch.—Exchange Hotel, Liverpool, 7.30 p.m. "The General Dental Services Committee," T. Hindle.

Friday, January 12.

West of Scotland Branch.—Philosophical Society of Glasgow, 207, Bath Street, Glasgow, C.2, 7.30 p.m. " General Dental Services Committee " and " Current Dental Affairs," J. Lauer.

Northern Ireland Branch.—Whitla Medical Institute, College Square North, 7.30 p.m. Valedictory Address; Presidential Address; Discussion on the formation of a General Dental Services Committee.

Thursday, January 18.

Bournemouth and District Section.—Grand Hotel, Fir Vale Road, Bournemouth, 8 p.m., preceded by Informal Dinner, 6.30 for 7 p.m. " Dental Photography," J. M. Dyce.

Central Counties Branch.—Clinical Meeting, Medical Institute, Birmingham, 7 p.m.

Leeds and District Section.—Leeds School of Dentistry, 7.45 p.m. " An Impression Technique for Full Lower Dentures," Professor H. B. Fenn.

Friday and Saturday, January 19 and 20.

Representative Board.—13, Hill Street, Berkeley Square, London, W.1.

Monday, January 22.

The Royal Society of Medicine—Section of Odontology.—1, Wimpole Street, London, W.1, 5.30 p.m. " The problem of the ' clicking-jaw ',' " V. E. Ireland.

Tuesday, January 23.

Preston, Leyland and Chorley Section.—Starkie House, Starkie Street, Preston, 7.30 p.m. " Oral Surgery in General Practice," J. S. Hilton Collinge.

Wednesday, January 24.

Sheffield University Dental Students' Society.—Annual Dental Ball, The City Hall, Sheffield, 8 p.m.

Friday, January 26

South Wales and Monmouthshire Branch.—Mackworth Hotel, Swansea, 7.15 p.m. "The Workings of the Dental Estimates Board," T. Leaver.

Wednesday, January 31.

British Dental Association Photographic Society.—13, Hill Street, Berkeley Square, London, W.1, 7 p.m. Showing of Scientific Films. All B.D.A. members welcome.

BRITISH DENTAL JOURNAL

Communications with regard to editorial business should be addressed to THE EDITOR, *BRITISH DENTAL JOURNAL*, 13, Hill Street, Berkeley Square, London, W.1. Telephone: Grosvenor 2761. Telegrams: "Bridention," Audley, London.

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BRITISH DENTAL JOURNAL SUPPLEMENT

January 2, 1951

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FOR many years it has been the custom for the Committee of Management to augment the December cheques to our beneficiaries by the addition of a special Christmas Bonus and although this year it has been necessary to ask our Bankers for an overdraft to meet the usual quarter's payments, rather than disappoint our old friends we have once again paid them this extra amount. This bonus is, to a large extent, met by special donations sent by our subscribers but there may be some of them who may have overlooked the matter and this notice may serve as a reminder, on the other hand there may be some of our members who were unaware of the fact and who would like to send their contributions, it is not too late to do so and they will receive the grateful thanks of the recipients.

SYDNEY B. NEWTON,
Chairman.

Public Dental Officers' Group

A MEETING of the Committee of the Group was held at Cambridge on Friday, November 17. Mr. D. E. Mason was in the chair.

Miss Paterson (Scottish Division) and Mr. Littlefield (Midland Division) were elected members of the Committee and were welcomed by the Chairman.

It was reported that the Council of the Association had declined to sanction the formation of an Industrial Dental Officers' Group and that following on this decision an Extraordinary General Meeting of the Industrial Dental Officers' Division had been held on October 21 at which it had been resolved that the Division, under its present constitution, could not fulfil its proper purpose and should therefore be disbanded.

The Division had been wound up and the balance of its funds paid into Group funds. There was a general expression of regret at the disbanding of the Division.

Mr. Jeffrey Fletcher presented a report on the last meeting of the Representative Board. In particular he noted the setting up of a committee to consider the question of dental auxiliaries and drew attention to the interim report of the Priority Classes Committee and to the recommendations dealing with the transfer of the school dental service to the Regional Hospital Boards; the employment of dental hygienists; and the limitation, to 2,000, of the number of school children allocated to each dental officer. There was general agreement that the transfer of the service from the local authorities was impractical. It was agreed that the interim report of the Priority Classes Committee should be referred to the Divisions, which would be asked to report their opinions in time for the next meeting of the Group Committee.

With regard to local authority dental officers employed in hospitals, the Secretary reported that no information about the Ministry of Health's policy was yet available. Mr. Hall and Mr. Grandison expressed the opinion that P.D.O.s doing hospital work in their own time should be remunerated by the hospital boards and that, in any agreement, their position should not be jeopardised.

Dental Whitley Council (Local Authorities): The Chairman reported that meetings of the Dental Whitley Council had been held on June 8 and July 6, 1950. At these meetings the claim of the staff side and the counter proposals of the management side had been presented and debated. In order to clear the ground a working party had been set up, with no power to commit either side. This working party had met once. The Medical Whitley Council, Committee "C," had decided to seek arbitration and the findings of the Arbitration Board were expected within the next few weeks[1] and might have a vital influence on the Dental Council's negotiations.

Among the points raised in the discussion on the Chairman's report were the date of retrospection, assimilation and holidays. The discussion ended with a vote of confidence in the P.D.O. members of the Council.

Arrangements for Meetings in 1951.—The following provisional arrangements were agreed:

Spring meeting at Cheltenham March 9 and 10.
Annual Meeting of the Association in London on July 2 to 6.
Annual Meeting of the Group in London November 16 and 17.

School Health Regulations.—After a short discussion on methods of integrating the school dental service into the general practitioner scheme, which had not received the approval of the Ministry of Education, the following resolution, proposed from the Chair, was adopted:

> The Public Dental Officers' Group Committee is gravely concerned at the continued unsatisfactory foundations on which the Local Authority Dental Services are built. It is gravely concerned that satisfactory dental services cannot be established until—
>
> (*a*) Section 48 of the Education Act and the appropriate Regulations issued under this section are revised or amended so as to make provision of regular dental inspection and treatment for all children attending maintained schools, or other educational establishments, a direct statutory obligation on local authorities;
>
> (*b*) the intentions of Section 22 of the National Health Service Act, as far as the provision of dental treatment are concerned, are set out as a regulation, issued under this section, and that within this regulation there should be a requirement for every local health authority to appoint a chief dental officer.

It was resolved that a copy of this resolution should be forwarded to the B.D.A. Health Acts Committee.

Royal Sanitary Institute Congress 1951.—The Secretary reported that no progress had been made with respect to getting a section and conference on "Preventive Dentistry" included in the Institute's annual congress. The Secretary was instructed to do his utmost to forward the Group's aim to have Preventive Dentistry included as a permanent section and conference.

[1]This award has now been made. *See* p. 32.

CHANGES OF ADDRESS

(E.C.) BAIKIE, G. Gordon, from 2, Park Mansions, North Parade, to 51, Kirkley Cliff, Lowestoft.

(E.M.) BOWERMAN, H., from 317 to 339, Humberstone Road, Leicester.

(— to Y.) BRUNNEN, A. J., from Box 41, Simon's Town, Cape Province, to 81, Whirlodale Road, Sheffield, 7.

(—) CAMPION, P. C. S., from Famagusta, to 7, Heraclious Avenue, Metaxas Square, Nicosia, Cyprus.

(F.L.) COOPER, C. C., from 39, Broad Walk, Pownall Park, Wilmslow, to 116, Bolshaw Road, Cheadle, Cheshire.

(W.C.) COUSINS, A. J. P., from 20, Victoria Square, to 10 Lansdown Place, Clifton, Bristol, 8.

(S.W. to M.) DAVIES-EVANS, A., from 3, Waun Wen Terrace, Nantymoel, Glam., to 2, Walmington Ford, N. Finchley, London, N.12.

(W. to E.C.) FINDLAY, A. W., from 38, Manor Farm Road, Bitterne Park, Southampton, to Ronwall, Top Road, Upper Denham, Bucks.

(W.S.) FISHER, R. M., from 46, Newmarket Street, to 14, Chalmers Road, Ayr.

(W.C.) FOSTER, T. R., from Brangwyn, Liberths Road, to Thornbury, Church Road, St. Mark's, Cheltenham, Glos.

(W.L. to N.S.) GODFREY, D. P., from 9, Bolton Road, Birkdale, Southport, Lancs., to 23, Marlborough Street, Seaham, Co. Durham.

(W.C.) HENLEY, C. E. L., from 1, West Park, to 31, Fair Street, St. Columb, Cornwall.

(C.C. to —) IRISH, E. C. (Lieutenant-Colonel, R.A.D.C.), from 471 A.D. Centre, Oswestry, to Medical Branch, H.Q. E.A. Command, P.O. Box 4000, Nairobi.

(C.C. to E.C.) KETTLE, E. (Mrs.), from 22, Portland Road, Birmingham, 16, to 23, Hillcroft Crescent, Wembley Park, Middx.

(S.C. to W.C.) KNIGHT, T., from Nutcombe Hotel, Portsmouth Road, Guildford, Surrey, to Treyarnon, Alexandra Place, Penzance.

(E.M. to W.L.) LAWSON, E. J., from 84, Wilsthorpe Road, Breaston, Derbys., to 2, Albert Grove, Great Crosby, Liverpool, 23.

(M.) MORGAN, E. D., from 299, Brownhill Road, London, S.E.6, to 58, Rayford Avenue, London, S.E.12.

(S.C.) RATTEE, V., from Nyetimber, Seale Lane, Seale, to 43a, The Borough, Farnham, Surrey.

(—) ROTHWELL, Miss P. L., from Flat 1, 4, Robinson Street, East Prahran, Melbourne, Victoria, to Lawley House, Barton, Canberr, A.C.T.

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(S.C.) SUTTON, P. S., from 11, Chichester Terrace, Horsham, to Kingsmead, De Tillens Lane, Limpsfield, Surrey.

(N.I.) SWEENEY, J. J., from 11, Clarendon Street, Londonderry, to 80a, Hill Street, Newry, Co. Down.

(E.C. to —) TIMMERS, B. W. (Mrs.), from 43, Wensleydale Road, Hampton, Middx., to Laan Van Meerdervoort 631, The Hague, Holland.

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Readmission.

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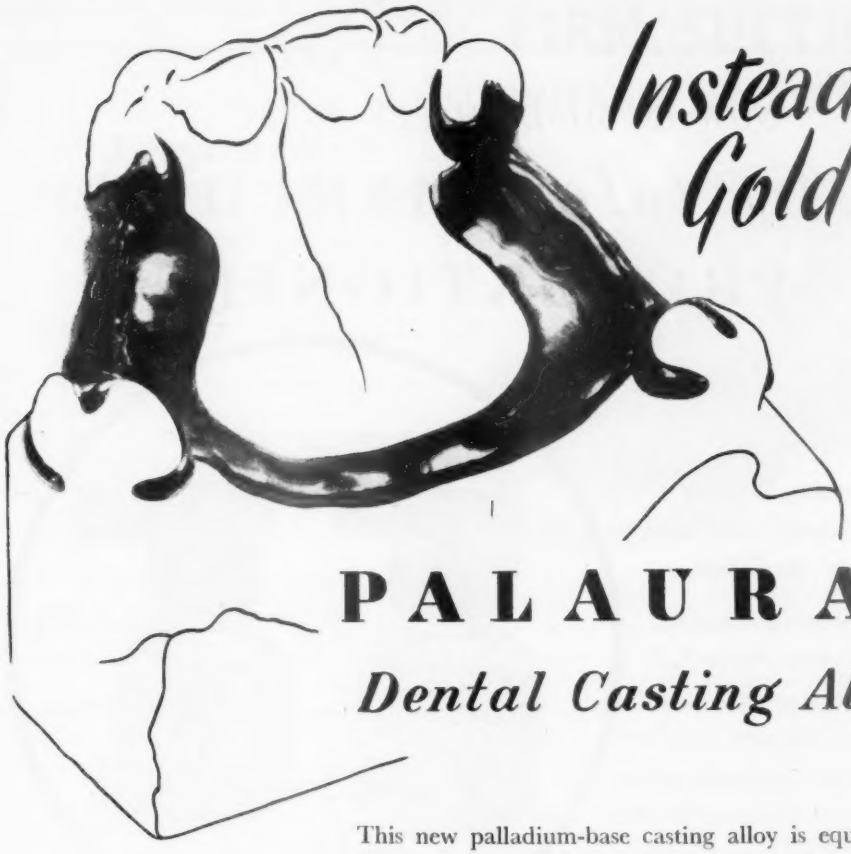
Nominated by : C. C. Titcomb, G. E. Firth, A. C. Fuller.

FORTHCOMING MEETINGS AT HEADQUARTERS

January 5	Health Acts Committee	9.30 a.m.
,, 6	Council	10.00 a.m.
,, 11	House Committee	5.00 p.m.
,, 12	Ancillary Workers Committee	10.00 a.m.
,, 18	Council	10.00 a.m.
,, 19	Representative Board	10.00 a.m.
,, 20	Representative Board	10.00 a.m.



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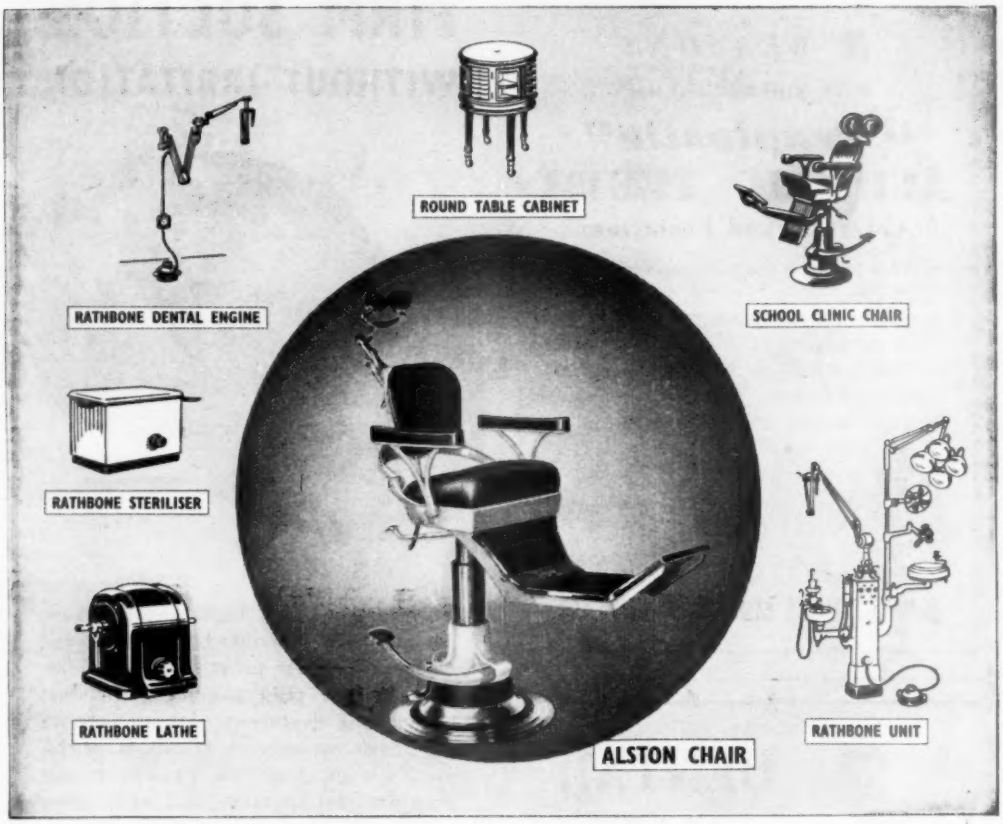

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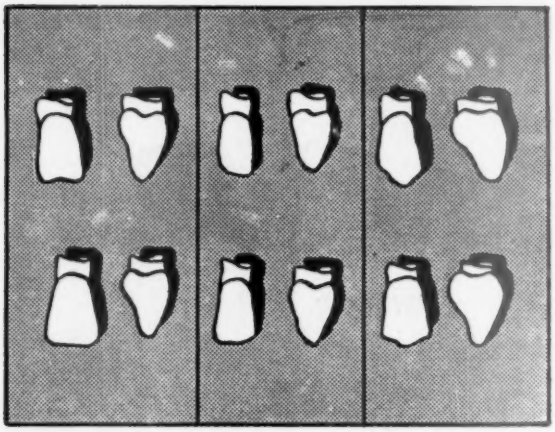

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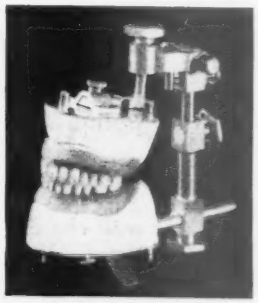

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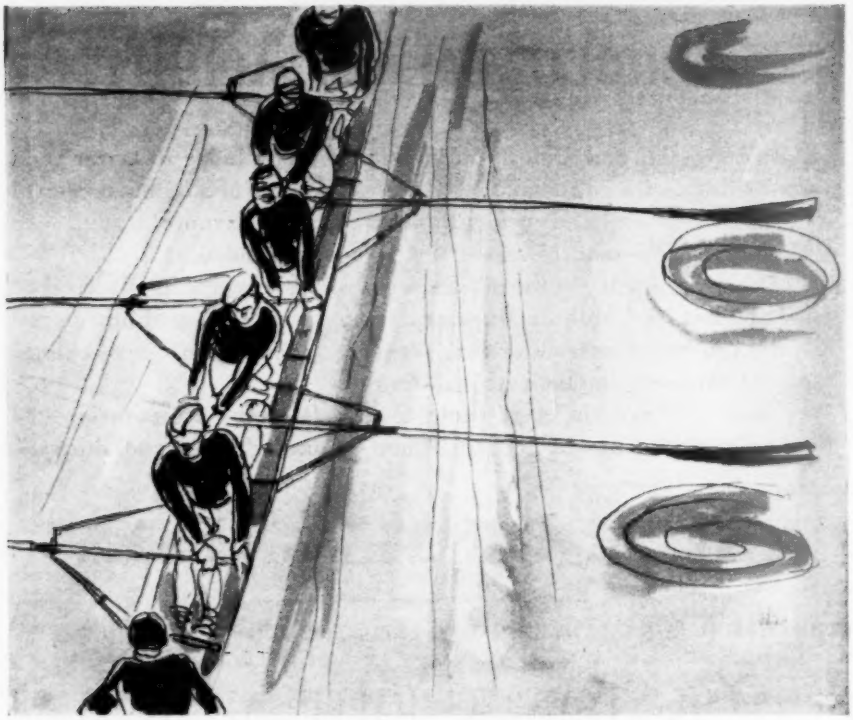

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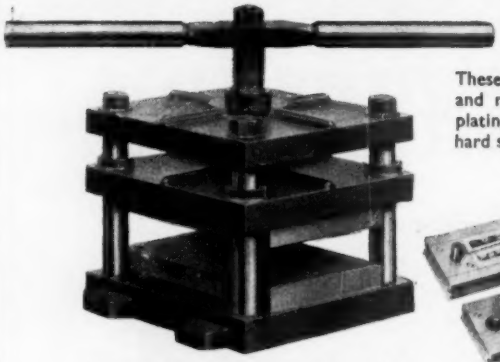

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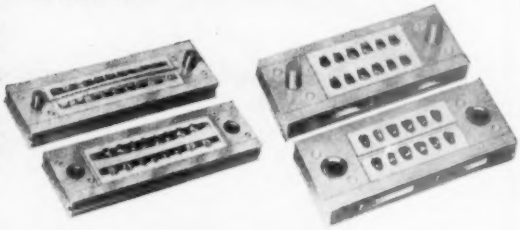

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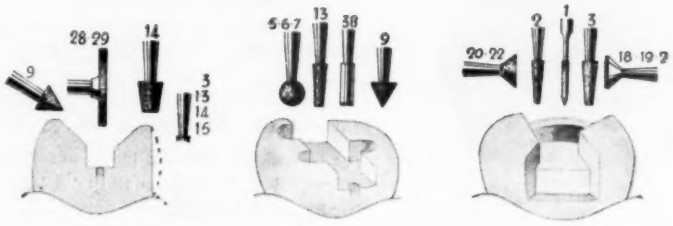

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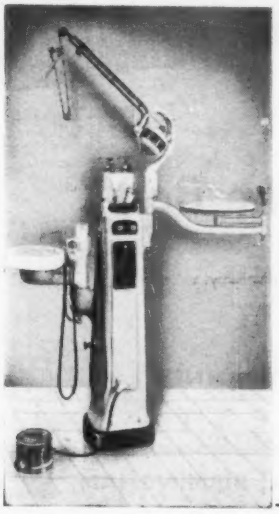

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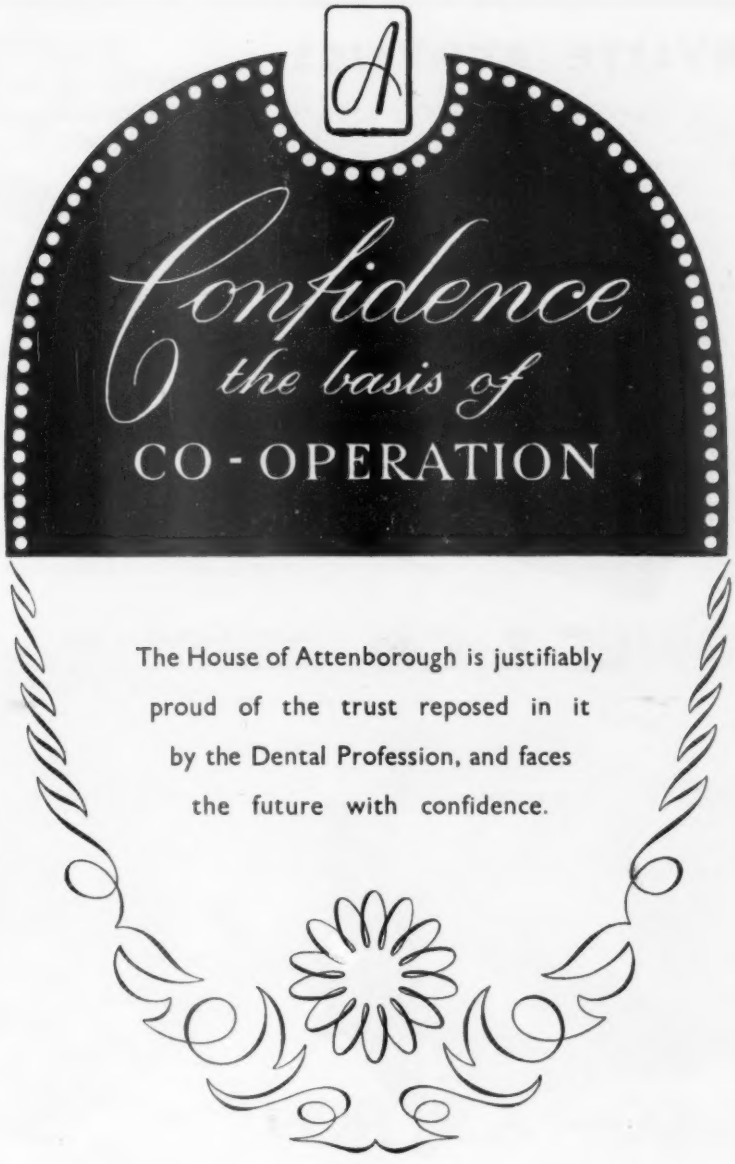

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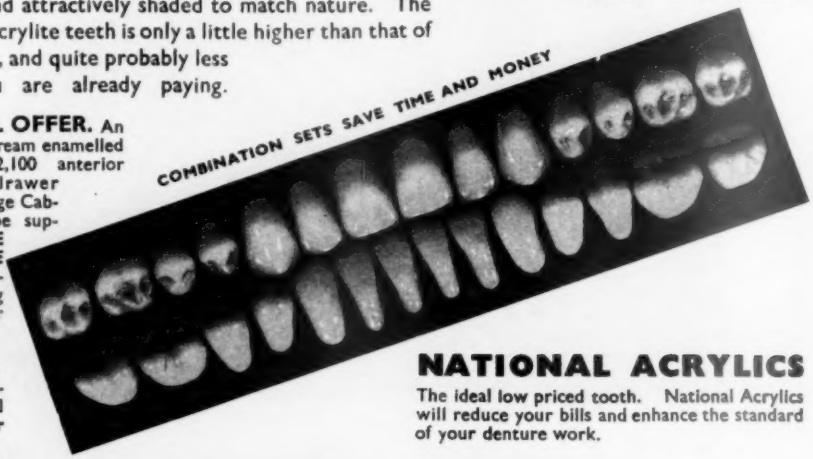

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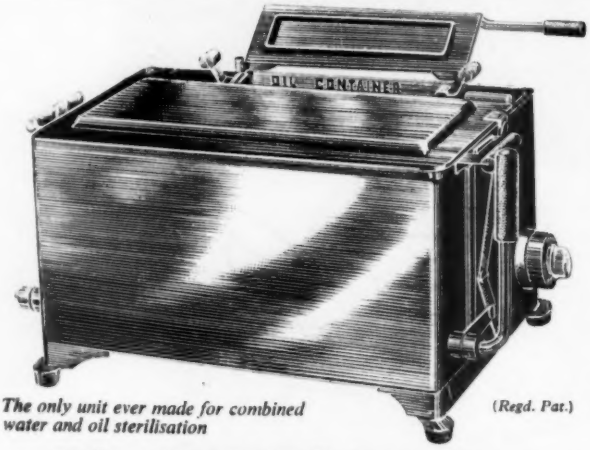

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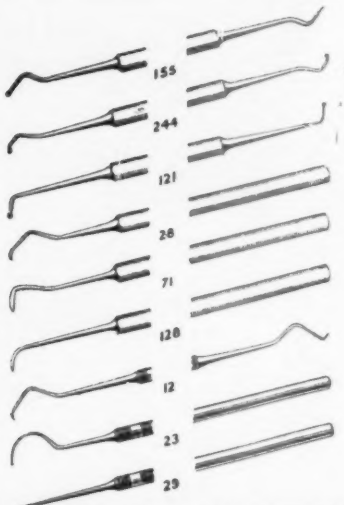

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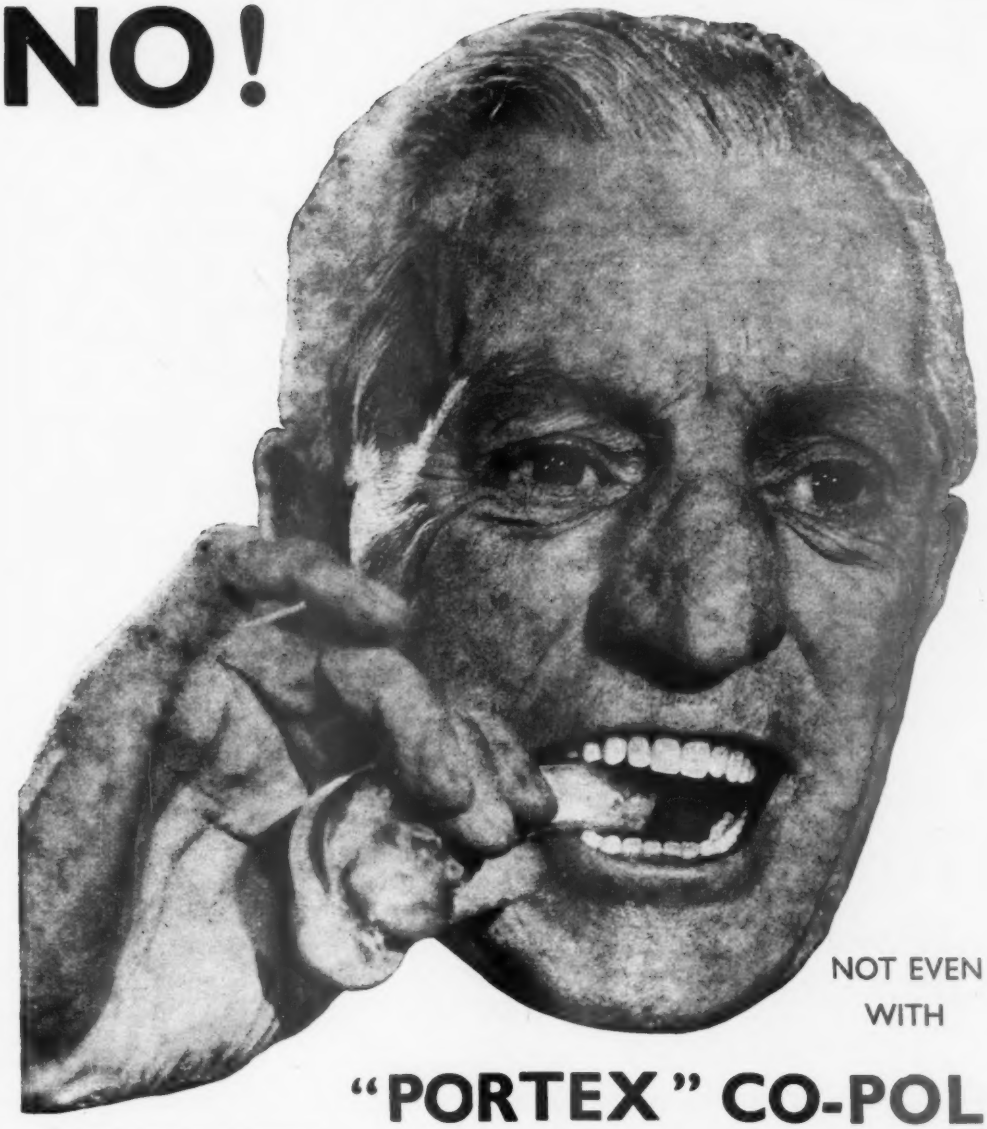

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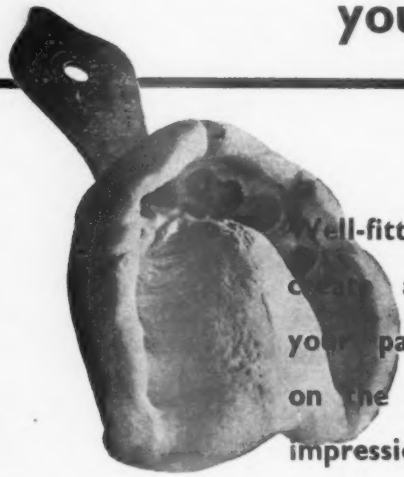

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